DOCUMENT RESUME

ED 254 479 SO 016 281

TITLE	7-9 Art. Approved by the Minister of Education.
INSTITUTION	Manitoba Dept. of Education, Winnipeg. Curriculum Development Branch.
REPORT NO	ISBN-86497-110-9
PUB DATE	83
NOTE	535p.; Color prints on pages 33-40 may not reproduce clearly. For the grades K-6 program, see SO 016 280.
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF02/PC22 Plus Postage.
DESCRIPTORS	Adolescent Development; Adolescents; *Art Activities; *Art Appreciation; *Art Education; Ceramics; *Curriculum Design; Design; Developmental Stages; Educational Objectives; Foreign Countries; Freehand Drawing; Junior High Schools; Models; Painting (Visual Arts); Photography; Program Development; Program Implementation; Resource Materials; Safety; Sculpture; Special Education; State Curriculum Guides; Teaching Methods
IDENTIFIERS	*Manitoba

ABSTRACT

A model junior high school art curriculum for use in Manitoba (Canada) schools is outlined. The first section provides an overview of the whole program, discussing rationale, goals, student objectives, the adolescent stage of visual development, the special student, the design of the guide, program implementation, and a scope and sequence. Methods for teaching art appreciation are discussed in the second section. Sample color plates are included. Elements and principles of design are the foci of the third section. The next seven sections deal with drawing, painting, printmaking, sculpture, ceramics, fiber arts, and photography. Each of the sections outlines the curriculum for grades 7, 8, and 9. Objectives, suggested activities, and emphases and resources are provided. Appendices list hazardous art materials and resource materials. (RM)

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7–9 ART

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7–9 ART

MANITOBA 1983

APPROVED BY THE MINISTER OF EDUCATION

ISBN 0-86497-110-9

7-9 ART

This guide has been developed as part of the revision of the overall art program for Manitoba schools. The final form is based on the pilot draft-interim guide and incorporates the suggestions of teachers who have been involved in its field testing. 7-9 Art becomes the approved provincial guide effective September, 1983.

ACKNOWLEDGEMENTS

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The participation of the staff and students of the following schools in taking the photographs that illustrate the guide is greatly appreciated.

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The student art work found on the cover and in the first section of the guide was chosen at the time of its exhibition in the 1982 spring Student Art Show held by the Manitoba Association for Art Education. The Department would like to thank these young artists for allowing their work to be reproduced in the guide.

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The Department would also like to thank these professional artists, all Manitobans, who have given their permission to include colour reproductions of their work in the guide. Their cooperation and support has been essential in developing the Art Appreciation section.

Jackson Beardy
Ken Chernavitch
Aganetha Dyck
Bruce Head
Luella Levitt
Don Reichert
Tony Tascona
Esther Warkov

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overview

RATIONALE

The study of art and craft has provided contemporary society with an account of its heritage. Marks of this heritage have made their way into the art of the present which, at the same time, records and reflects the present culture. Since art has been a significant form of expression throughout history to the present day, it is important that students from an early age onward be able to learn of its processes and engage in its production.

In fact, the visual arts have been supported as an integral part of the school curriculum in North America since 1871 on the basis that art offers students a means of self-expression which develops mental and creative abilities. This view forms the basis of the current art program, which takes as its major aim the development of visual perception in the student--visual perception involving not only seeing the environment, but also responding to it emotionally, and analyzing this response. Art education should be instrumental in the growth of the student as a seeing, feeling, and thinking individual.

The art program is designed to provide students with opportunities to identify, separate, relate, analyze, evaluate, and express ideas and feelings about visual images. Vision is one of the most powerful of the human senses: individuals receive approximately eighty percent of all information visually which makes the visual mode of communication even more prevalent than the verbal. It is essential that students in an art program explore thinking and feeling both by solving problems visually and by discussing and analyzing visual perception.

Individuals are constantly bombarded with visual stimuli in new forms which are directed at shaping and moulding their decision-making processes. Their lives are influenced by these images which frequently predetermine their values. Virtually all things in use--buildings, household goods, clothes, magazines, books, television programs and movies--are designed or redesigned for and by human beings. In this way, art functions in the lives of most individuals all of the time.

The art curriculum should reflect in part the environment of the adolescent. For the individual involved in the study of art and its process, art is a way of communicating and expressing, in a visually concrete way, reactions to the environment. Thus through art, through the manipulation of media, the individual is able to show his or her response to the world.

In the middle years, students come in contact with, and become aware of, society. Peer group pressures and societal values are questioned, examined and reacted to, though perhaps not analyzed or evaluated with complete understanding. It is therefore essential that adolescents deal with visual stimuli familiar to them in the context of today's society, since these can influence the formation of their attitudes and behaviour.

For the adolescent, art is no longer the spontaneous and free form of expression that it is for the younger child. The middle years student is often critical of his or her own technical abilities, often comparing his or her own work to that done by peers. In order to provide students with the tools to develop greater self-confidence and more mature self-evaluation, the middle years art program should allow for the sequential development of art elements, art concepts and fundamentals, and skills with art media.

An art program concerned with skill development alone would not provide adolescents opportunities for relevant self-expression involving the development of their own imagery. To foster creativity in the middle years, the art program should provide problem-solving situations that encourage students to use their own imaginations. These problem-solving situations should start with and be organized around topics that are of relevance and interest to the adolescent student. The art program should also provide situations where students have the opportunity to talk about art and the environment.

The role of instructors in the middle years art program is multifaceted, requiring that they balance structured guidance in skill development with an understanding of adolescent behaviour and an appreciation for the imagery often uniquely preferred by this age group. Planning a variety of approaches to visual problems and considering methods by which to motivate students and instill excitement into the art program are further responsibilities.

Students who are actively involved in the art program attain an expanded visual awareness of the environment surrounding them, undergoing perceptual growth which helps them in all other areas of learning.

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Eisner, Elliot W. Educating Artistic Vision. New York: Macmillan, 1972.

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GOALS

Program Goals

The program is intended to:

1. Develop visual, tactile, and auditory perception.
2. Develop an understanding of the application of art fundamentals.
3. Develop skills in the use of media and techniques.
4. Promote aesthetic awareness of the historical and cultural environment through observation and analytical study.
5. Provide a variety of art experience so that art becomes one of the options for the individual's continuing exploration and enrichment.

Teaching Goals

The teacher should:

1. Encourage sensitivity by exposing students to varied sensory experiences.
2. Familiarize students with the basic elements of art and the principles of design.
3. Familiarize students with the use of various techniques and materials.
4. Expose students to a variety of styles and examples of art forms.
5. Provide opportunities that show how art affects and reflects the environment both historically and culturally.
6. Foster communication skills related to art by utilizing an art vocabulary in the program.
7. Provide opportunities for students to use their own imaginative skills through problem-solving and decision-making activities.
8. Foster a positive attitude towards art in the school and the community.

Learning Goals

The student should demonstrate an increasing ability to:

1. Translate various sensory experiences into visual forms.
2. Combine the elements and principles of art into visual images.
3. Use various media and techniques.
4. Analyze works of art and develop an understanding of personal preferences and opinions.
5. Perceive art elements inherent in the natural environment as well as those that are culturally and historically present.
6. Interpret a visual experience orally, visually, or in written form.
7. Apply their own imaginative skills in problem-solving and decision-making activities.
8. Recognize how art can offer an enriching and enjoyable experience throughout one's life.

STUDENT OBJECTIVES

Drawing

In grade seven, the student shall:

- Gain an understanding of the way in which line may be used to describe the edges or contours of a form.
- Develop the perceptual skills and hand-eye coordination required in producing contour line drawings.
- Observe the structure of linear forms and develop skill in using line to record these forms.
- Observe textured surfaces and develop skill in using line to record these surfaces.
- Become sensitive to the "gesture" inherent in the pose or position of a figure.
- Observe the gesture of a total figure and record it in a gesture drawing.
- Discriminate between values and develop methods for executing value gradations with a single medium.
- Distinguish the difference between hue (colour) and value.
- Develop skills in perceiving volumes of objects and in reproducing them by means of graduating values.
- Observe indicators of spatial relationships (i.e., depth-in-space effects) in the environment and in drawings.
- Demonstrate skill in using indicators of spatial relationships in a drawing.
- Observe the positive and negative shapes in a composition and be able to differentiate between them.
- Observe "negative space" and record it by shading.
- Develop ability to compose drawings using negative space.

In grade eight, the student shall:

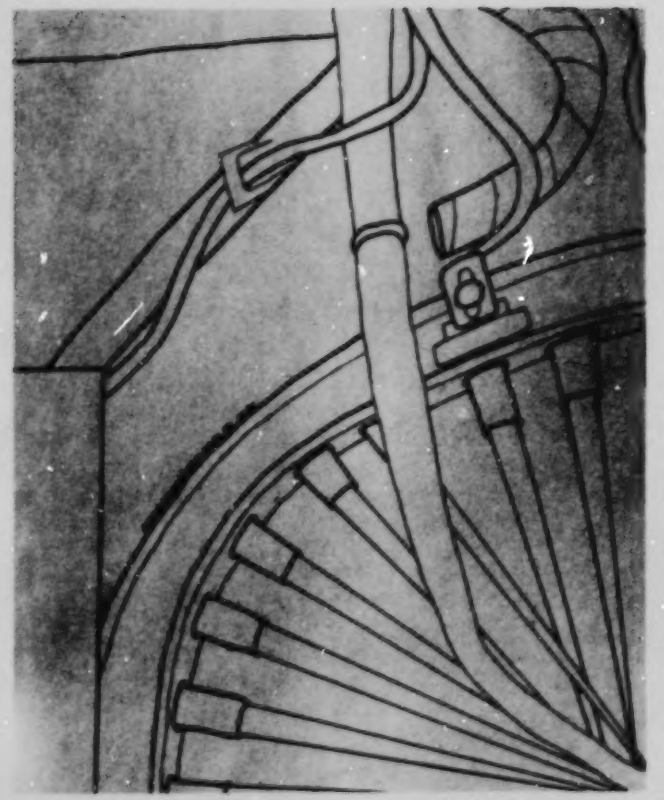
- Develop an understanding of the difference between primary and secondary contour.
- Refine skills required to produce a contour line drawing.

- Observe that the direction and characteristics of a line can create an emotional response in the viewer.
- Compare drawings that use line to evoke emotional response.
- Improve his or her ability to see, feel, describe and draw the gesture of a figure.
- Observe the gestural qualities of inanimate objects and demonstrate an understanding of them.
- Develop the skill of recording through spontaneous drawing the gesture of objects.
- Be able to differentiate between the different values reflected by various surfaces of an object.
- Experiment with different drawing methods and media in order to reproduce value gradations that are present in basic geometric forms.
- Demonstrate the ability to see and record the weight of a figure by composing a modelled drawing (mass drawing).
- Continue to observe the solidity of a subject and its weight or massiveness and to record these features in drawing.

- Develop an understanding of the different systems of spatial presentation used in various cultures throughout history.
- Refine the ability to see spatial relationships and to record these using spatial relationship indicators.
- Observe the simple construction of lines of perspective and demonstrate an understanding of these lines.
- Exhibit an understanding of the formula for single-point perspective.
- Become conscious of the importance of negative areas in the design of any composition.

In grade nine, the student shall:

- Observe that variations in the weight of a line can create the illusion of spatial depth and demonstrate an understanding of these line variations.
- Create contour drawings that use lines of varied thicknesses to define the forms of objects and the spatial relationships between them.
- Demonstrate the ability to see and "feel" the volume of an object and to record its form by the use of cross-contour drawing.
- Observe how the medium determines, in part, the quality of line in the works of professional artists and experiment by drawing lines in various media.
- Demonstrate the ability to use in a contour drawing a medium which produces a quality of line suitable to the feelings being expressed.
- Improve the ability to see and record gesture and to feel empathy for the gesture of a figure.
- Observe visual continuity in a composition and demonstrate an understanding of this continuity.
- Recognize that light is reflected in different ways from curved and flat surfaces.
- Demonstrate the ability to create the illusion of volume in a composition by the discriminate use of shading.
- Demonstrate the ability to create atmosphere.
- Observe two-point perspective and demonstrate an understanding of it.



- Display competence in the ability to draw whole compositions using perspective formulas.
- Use perspective formulas to create dramatic effects in a composition.
- Become aware that contemporary art often shows no concern with figure-ground distinctions.
- Develop skills in composing drawings that treat the space of the page as a two-dimensional surface and that do not rely on the traditional concept of object against background for interest.

Painting

In grade seven, the student shall:

- Become familiar with the variety of effects that can be achieved through the use of different types of brush strokes and painting media.
- Develop some understanding of basic colour mixing and acquire commensurate skills.
- Apply colour mixing skills in the painting of a composition.
- Become familiar with the concept of "value" and its relationship to painting.
- Develop skills in mixing colours to obtain determined values.
- Apply experience and skills gained from colour mixing exercises to painting composition.
- Understand how secondary and tertiary colours are obtained by mixing and how and why colour is organized as it is on the colour wheel.
- Become aware of the emotive potential of colour.

In grade eight, the student shall:

- Develop an awareness of harmonic relationships created by the use of analogous colours.
- Refine skills in mixing colours to achieve desired value.
- Acquire an understanding of the phenomenon of optical colour mixing.
- Apply the principles of optical colour mixing to a painted composition.
- Become aware of the potential that advancing and receding colours have for suggestive spatial depth and develop skills in mixing colours to achieve recession or advancement.

In grade nine, the student shall:

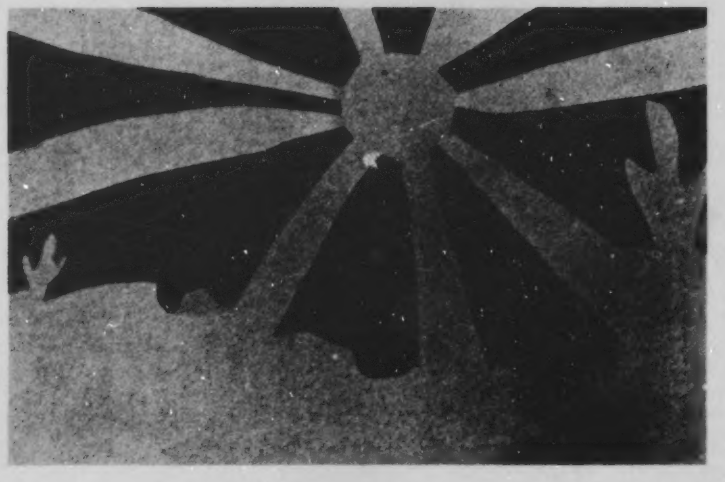
- Become aware of the optical phenomenon of apparent colour change that is effected through adjacent colours.

- Develop skill in using this optical phenomenon--apparent colour change effected by adjacent colours--to create deliberate effects in a painting.
- Become aware that colour can evoke an emotional response and can also represent abstract ideas or concepts.

Printmaking

In grade seven, the student shall:

- Observe the transfer of an image from an inked surface to a paper and demonstrate an understanding of this basic process.
- Demonstrate skill in creating, inking, and pulling a monoprint.
- Explore the visual and the compositional possibilities in the printing of found objects and demon-



strate skill in creating a relief plate, inking the surface, and pulling a print.
- Understand the basic process of intaglio printing and develop the skills required to produce a drypoint print.
- Develop technical and design skills in silk-screen printmaking (serigraphy) and demonstrate an understanding of it.

In grade eight, the student shall:
- Demonstrate skill in producing a reduction print.
- Observe the results of removing surface area and the effects achieved from various cuts.
- Understand the design potential of overprinting for colours and altering images.
- Develop the skills required for the production of a simple engraved print.

- Refine silk-screen printing skills and apply these to repeat-pattern designs.

In grade nine, the student shall:
- Understand the techniques of the linoleum printing process.
- Demonstrate the ability to use tools properly and safely.
- Perceive the relationship between surface reduction and the 2-D print surface; e.g., colour overlap and depth of cut.
- Understand ways to control the reversed image, registration, and offset.
- Refine skills required in the production of a well-designed intaglio print.
- Develop technical and design skills in the production of silk-screen prints by the photo-sensitive method.

Sculpture

In grade seven, the student shall:
- Develop an understanding of the processes involved in carving a solid material to create a three-dimensional sculptural form.
- Develop the skills required in the production of a carved, three-dimensional sculpture.
- Observe and understand the principle of visual balance in three-dimensional forms.
- Use an additive process to model in a plastic medium (papier-mâché or clay) a three-dimensional form that demonstrates an understanding of the principle of balance.
- Understand the principles of unity and variety as they are applied to relief assemblage.
- Select the appropriate sculpture materials and techniques and use these to create a unified composition in found object relief.

- Understand the reversal process in casting a relief sculpture.

In grade eight, the student shall:

- Apply principles of organization such as harmony, balance and movement to the carving of materials.
- Develop skills in modelling sculpture that show an understanding of positive-negative space organization.
- Demonstrate an understanding of the principles of kinetic movement in a formally organized three-dimensional composition.
- Develop skills in the construction of a physically balanced mobile sculpture.
- Develop skills in the construction of linear sculptures.

In grade nine, the student shall:

- Develop skills in carving three-dimensional forms that use positive and negative space.
- Refine skills in carving three-dimensional forms that have unity and variety.
- Understand the relationship between form and expressive content.
- Develop skills in modelling sculpture that show an understanding of visual movement in a three-dimensional form.
- Construct a free-standing sculpture composed of individually designed components that shows an understanding of the principles of organization.

Ceramics

In grade seven, the student shall:

- Understand the visual, physical, and chemical properties of clay through definition and experience.
- Use proper terminology to describe different stages of clay.
- Gain an understanding of clay as an organic material.

- Find local clay deposits and experiment with these.
- Develop skills in various hand-building techniques: pinch, coil and slab.
- Infer a similarity between inner and outer structure in using the slab method of hand-building.
- Gain an understanding of the basic processes of wheel-throwing.
- Infer a relationship between the pressure applied by the hands to the clay body and the shape of the clay walls.
- Gain an understanding of the subtractive method of sculpture as it applies to relief ceramic forms.
- Demonstrate skill in the subtractive method of sculpting.

In grade eight, the student shall:

- Observe how various processes cause the properties of ceramic objects (such as form, colour, or texture) to change, identify the changes, and describe them.
- Demonstrate skill in creating open and closed, functional and non-functional forms.

- Demonstrate skill in using various techniques of hand-building.
- Demonstrate skill in using a variety of methods for decorating the surface of ceramic objects.
- Perceive the sensory and expressive properties found in 3-D form and respond to these.
- Refine technical skills in creating wheel-thrown forms.
- Acquire an understanding of the historical development of the potter's wheel and the contribution it made to various cultures.
- Observe and identify culturally significant uses of primitive and modern masks.
- Gain an understanding of the additive method of sculpture.
- Demonstrate perceptual awareness of functional and decorative design.

In grade nine, the student shall:

- Demonstrate skill in using clay in different stages.
- Perceive the visual and tactile properties in natural and man-made forms.
- Demonstrate an understanding of the relationship between form and function in natural and man-made forms.
- Observe and describe variables, such as size and shape, that affect the strength of a structure.
- Demonstrate skill in constructing hand-built functional forms.
- Infer that objects lose in aesthetic appeal if their physical weight is not the same as their visual weight.
- Evaluate wheel-thrown ceramic forms in terms of the relationship of the parts to the whole; i.e., foot, body, neck, mouth.
- Experiment with enhancing a basic volume of a thrown form by adding a foot, neck, handle, spout, etc.
- Demonstrate greater ability to evolve forms on the wheel, including cylinders, spheres, bowls, and plates.
- Understand the visual relationship between mask design and the human head.

- Exhibit visual awareness and sensitivity to texture and the use of colour to interpret mood.
- Infer a relationship between the sensory and expressive use of colour.

Fibre Arts

In grade seven, the student shall:

- Become aware of the development of particular styles of North American Indian weaving and of the materials used therein.
- Become aware of the fundamentals in weaving: warp, weft, and the basic weaving process.
- Understand the process of weaving and perform it.
- Develop a concern for planned colour selection.
- Demonstrate the ability to make a simple frame loom.
- Become familiar with different weaving techniques.

- Understand the development of stitchery and its traditional and contemporary applications.
- Become aware of the qualities and potential of machine stitchery as compared to hand stitchery.
- Become aware of stitchery as a valid art form.
- Develop creative and technical skills in stitchery.
- Become aware of the traditional use of tie and dye technique and its contemporary revival.
- Understand the resist process in tie and dye and develop skill in using it.
- Apply colour theory in blending several dye baths.

In grade eight, the student shall:

- Recognize that weaving is a natural process found in the environment as well as one that is hand- or machine-crafted.
- Gain an understanding of how a simple frame loom is set up and develop skills required to weave a length of fabric that can be used in a functional way.
- Develop an understanding of traditional and contemporary patchwork and quilting.
- Understand the processes of patchwork and quilting, develop skills in them, and apply them to creative design.
- Understand the development of traditional batik in other cultures and contemporary batik in the western world.
- Demonstrate the ability to use different batik techniques and to manipulate tools.
- Exhibit an understanding of the techniques of batik as applied to fabric design.

In grade nine, the student shall:

- Recognize weaving as decorative as well as functional.
- Produce an originally designed, decorative woven hanging.

- Use fibres and colours according to the purpose of the weaving.
- Become aware of the qualities and potential of constructed cloth forms as a medium for three-dimensional design.
- Develop the skills required to construct three-dimensional cloth forms.
- Become aware of traditional and contemporary methods of printing with stencil and dye on fabric.
- Understand why stencil printing is one of the main processes used in industry for decorating fabric.
- Develop skills in designing, preparing a screen for, and printing a length of fabric.

Photography

In grade seven, the student shall:

- Become accustomed to the transfer of an image from a small surface area to a larger one through screen projection.
- Experiment with the use of shape in the making of a slide frame.
- Become familiar with the transparency of colour media projected through a light source.
- Explore the expressive possibilities of colour and shape in the making of hand-made slides.
- Become sensitive to the qualities of rhythm and movement inherent in repeated images, each of which is slightly altered to show consecutive stages of a movement.
- Demonstrate an understanding of how the flip-book technique can present the illusion of movement through time.
- Become familiar with the basic techniques for creating motion in hand-drawn animated film.
- Become aware of the potential of film-making as an art form.
- Evaluate the degree to which a sound may be suitably matched up with visual imagery in motion.

In grade eight, the student shall:

- Become aware of the historical development of the camera obscura, which preceded the wide use of photography as a means of recording visual images.
- Be able to construct a light-sensitive apparatus in the form of a pin-hole camera.
- Become aware of the similarities and differences between a pin-hole and a regular camera.
- Make decisions as to lighting conditions and the design of the image of intended photographs.
- Gain an understanding of photo developing procedures.
- Develop an awareness of aesthetics in the format of the final presentation.
- Become familiar with some of the historical aspects related to the development of photograms.
- Compile a variety of found objects into a visually-pleasing composition.
- Become familiar with the basic techniques that are used in making a photogram.
- Become aware of the varieties of photogram techniques in order to achieve differing visual effects.

In grade nine, the student shall:

- Become familiar with the concept of sequences through the study of commercial comic strips.
- Recognize that a storyboard can express a personal and/or universal idea or message.
- Demonstrate an understanding of the way in which the storyboard can illustrate serial actions or events.
- Become aware of the role of film in contemporary society.
- Become familiar with the historical development of film animation.
- Become familiar with the skills involved in the production of an animated film.
- Make decisions regarding the timing of the action, the dramatization of the script, the management of settings and props, and the use of special techniques (focus, pan shots, angles, etc.).
- Become aware of the potential of film-making as a means of expression.

SCOPE AND SEQUENCE FOR GRADES 7-9

Unit	Grade 7	Grade 8	Grade 9
Drawing	Continuous Contour Blind Contour Surface Patterns Gesture Drawing - Lines Describing Movement Modelling - Gradations of Value - Values Creating Volume Two-Dimensional Illusion of Space Positive and Negative Space	Primary and Secondary Contour - Lines Describing Three-Dimensional Form - Lines Conveying Emotion Gesture Drawing - Inherent Gesture of Inanimate Objects Modelling - Three-Dimensional Illusion with Value - Value and Illusion of Weight Illusion of Space - Size and Placement - Picture Plane - Vanishing Point/Single-Point Perspective - Horizon Line/Eye Level	Contour - Variety of Line Qualities to Create Depth and Spacial Relationships Between Objects Gesture - Visual Continuity Through Gesture Modelling - Reflected Light Two-Point Perspective Figure-Ground Relationships
Painting	Exploration - Media and Tools Hue - Primary and Secondary Colours Complementary Colours - Intensity Value - Addition of Black or White - Monochromatic Colour Scheme/ Harmony Tertiary Colours Warm/Cool Colours - Emotive and Associative Qualities	Analogous Colour Scheme/Harmony Value - Monochromatic Colour Scheme - Tints and Shades Optical Mixing - Pointillism Warm/Cool Colours - Advancing and Receding	Optical Illusion - Interaction of Colours - Repetition Emotional and Symbolic Use of Colour - Relation to Culture

Unit	Grade 7	Grade 8	Grade 9
Printmaking	Planography - Monoprint/Texture Relief - Collograph - Multiple Prints Intaglio - Dry-Point - Line Quality - Value Stencil - Serigraphy	Relief - Reduction Print - Multicoloured Print Intaglio - Engraving - Value and Texture Through Line Stencil - Serigraphy/Block Out - Repeat Patterns	Relief - Reduction Print - Registration/Offset Intaglio - Combining Dry-Point and Engraving Stencil - Serigraphy - Photo-Sensitive Method
Sculpture	Subtractive - Carving - Form and Surface Additive - Modelling - Visual Balance Assemblage - Unity and Variety Casting - Reversal Process - Negative Molds	Subtractive - Carving - Visual and Physical Balance Modelling - Positive and Negative Space Assemblage - Mobiles - Kinetic Movement/Balance Linear Sculpture - Wire Sculpture - Line Direction and Quality	Subtractive - Carving - Unity and Variety of Shapes Additive - Movement Suggested Through Contours Assemblage - Constructivism - Varied Yet Similar Shapes - Rhythm
Ceramics	Nature of Clay - Exploration - Greenware, Bisque, Glazeware, Leather Hard Hand-Building - Pinch, Coil and Slab Wheel-Throwing - Wedging - Centering, Opening and Raising Relief - Low and High Relief - Carving	Nature of Clay - Changes in Property Hand-Building - Open and Closed, Functional and Non-Functional - Multiple Pot Construction - Surface Treatment - Colour, Texture and Form/ Expressive Qualities Wheel-Throwing - Basics of Cylinders - History	Nature of Clay - Use of Clay in Different Stages - Casting Liquid Clay Hand-Building - Relationship Between Form and Function - Actual and Visual Weights Evaluating Wheel-Thrown Objects - Unity, Proportion, Form and Function Relief - Symmetrical Balance - Masks: Expressive Use of Colour and Texture

Unit	Grade 7	Grade 8	Grade 9
Fibre Arts	Weaving - Interlacing/Warp/Weft - Harmony Through Colour - Texture and Pattern - Simple Frame Loom - Weaving Techniques Creative Sewing: Stitchery - History - Techniques and Materials Dyeing: Tie and Dye - Traditional and Contemporary Techniques - Rhythm, Line, Shape, Texture and Colour	Weaving - Natural and Constructed - Functional Uses Creative Sewing: Patchwork and Quilting - Sculptural Quality - Functional - Shape/Organic and Geometric/ Patterns - Decorative Stitching Dyeing: Batik - Techniques, Tools and Procedures.	Weaving - Decorative and Functional Creative Sewing: Soft Sculpture - Expressive Quality - Techniques Dyeing: Screen Printing/Stencil - Definition, History - Design and Use - Repetition
Photography	Hand-Made Slides - Projector/Screen Distance - Expressive Possibilities of Colour and Shape - Theme Flip Book - Illusion of Movement - Three-Dimensional Space on Two-Dimensional Surface - Relationship to Film-Making Hand-Made Film - Timing: 24 Frames/Second for 16 mm - Materials and Procedures - Repetition of Images/ Sequencing - Design Considerations - Sound Track/Use of Music	Pin-Hole Camera - History - Construction - Relationship of Camera to Resulting Image - Infinite Depth of Field - Composition - Developing Procedures/ Presentation Photograms - History - Techniques - Unity and Balance	Storyboards - Purposes and Use of Theme - Sequence Illustrating Time, Place or Action - Line and Colour/Imagery Film Animation - Function of Film in Society/ History - Techniques - Multiple Images/Sequencing - Storyboard and Script - Subject Matter - Framing/Design - Timing: 18 Frames per Second for Super 8 - Lighting, Setting, Special Effects, Editing, Sound Titles

THEME SCOPE AND SEQUENCE FOR GRADES 1-6

Theme	1 - 2	3 - 4	5 - 6
Self-Awareness	Body Awareness	Moods, Feelings	Human Head
Environment: Social/ Cultural	The Family: Description and Activities Canadian Art: Places and Events Christmas Fairs and Festivals Other Societies: Environmental Influences on Art	People in the Community Gifts Other Societies (Mexico): Relationship of Art to Society	
Physical	Natural Materials Shelter: Neighbourhood	Recycling Material Seasons Buildings: Present and Future	Influence of Seasons on Nature (Trees) Environmental Art
Integrated Subject Areas - Language Arts	Alphabet Letters Illustrating Stories	Drama-Puppet Play Book Production	
- Music	Illustrating Musical Selections	Musical Instruments	
- Math	Pattern: Repetition and Sequence	Symmetry	
- Science	Animals and Their Environment Plants	Reptiles and Their Environment Sound	Forces and Motion
- Social Studies			Manitoba's Past: Buildings and Relics Native Studies (Plains Indians

MEDIUM SCOPE AND SEQUENCE FOR GRADES 1-6

Media	1 - 2	3 - 4	5 - 6
Drawing	Experimentation with Various Media Observation of Objects and People From Imagination, Memory/ Narrative Drawing Types: Narrative Action Crayon Engraving	Gesture With Pencil, Brush, Twigs, Sticks, Oil Pastels Crayon Lift Calligraphics/Pattern	On Location - Neighbourhood Expressiveness of Line Still Lifes Value Cross-Hatching, Pointillism Contour and Gesture
Painting	Use of Background Crayon Resist Group Mural Experimentation with Various Media	Background Treatment Water Colour: Transparency, Opaqueness Mixed Media/Different Painting Surfaces Group Mural	Colour: Primary, Monochromatic, Harmony Mixed Media Group Mural
Printmaking	Uses Imprints Techniques for Finger Paint, Stamping, Styrofoam Block Mimeographing	Techniques for Styrofoam, Linoleum, Cardboard Media or Techniques Compositional Considerations	Preliminary Sketches Experimentation with Various Tools Techniques for Finger Paint, Cardboard Collograph, Linoleum, Wood-Cuts
Ceramics	Thumb Pot Tile or Medallion "Pulling" a Four-Legged Animal Decoration of Surface	Kneading, Joining Hand-Building Techniques for Coiling, Slab-Building Care and Use of Material	Modelling, Slab-Building, Coiling Textural Effects Historical Significance of Pottery

Media	1 - 2	3 - 4	5 - 6
Collage	Organization of Total Space/ Pattern Centre of Interest Technique for Materials Rubbings from Collage	Paper Mosaics Use of Found Objects Unity Through Repetition of Shapes and Colours Use of Felt Pens	Monochromatic Colour Scheme Assembling and Organizing Strongest Colours/Textures for Accent Natural Materials Group Collage Tile Mosaic
Fabric and Fibre	Pattern in Weaving Uses and History of Weaving Techniques for Paper Weaving, Cardboard and Yarn, Finger-Knitting, Braiding, Stitchery	Uses of Sewing and Weaving Decorative Stitches Colour: Families/Repetition Techniques for Stitchery, Appliqué, Weaving	Techniques for Fleece-Spinning, Dyeing, Weaving, Basketry Use in Native Cultures
Sculpture and Construction	Techniques for Paper, Cardboard, Papier Mâché, Wood Scraps Functions of Constructed Forms Decoration	Techniques for Mobiles, Papier Mâché, Wood Assemblage Inuit Sculpture	Subtractive Sculpture, Casting, Mobiles, Kites Historical and Cultural Aspects Group Sculpture Relief and Free-Standing
Photography		History View-Finding/Composition Animation, Flip-Charts, Storyboards	Uses Photograms Positive/Negative Space Camera Techniques
Architecture and Environmental Studies			Historical Manitoban Architecture Contemporary Canadian Architecture Environmental Concerns City Planning

DESIGN SCOPE AND SEQUENCE FOR GRADES 1-6

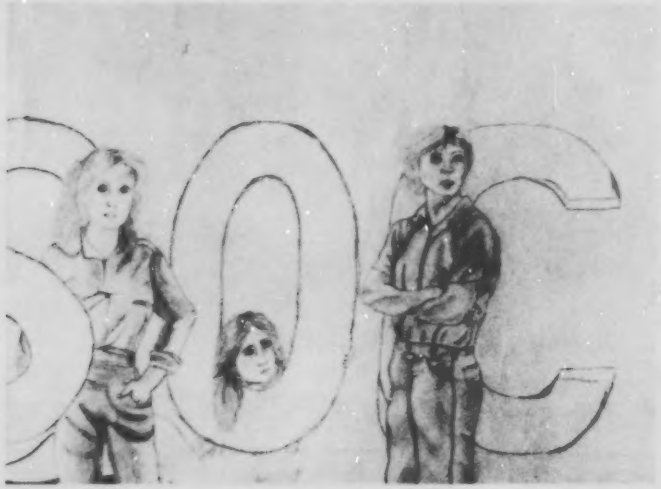
Design Elements/ Principles	1 - 2	3 - 4	5 - 6
Line	Emotive Qualities	Contour, Continuous Line Movement and Direction Emotive Qualities	Gesture, Movement Emotive Qualities
Texture	Tactile Awareness	Animals, Natural Objects Textural Quality of Line	Relationship of Texture to Form Textural Techniques - 2-D and 3-D
Colour and Value	Mixing Primary, Secondary Tints and Shades Emotive Qualities	Colour Wheel Primary, Secondary and Tertiary Colours Emotive Qualities	Graying Colours Value Scale/Shades and Tints Pointillism
Shape and Form	Geometric, Organic	Positive and Negative Variations Repetition Shadows	Viewpoint Depth by Overlapping
Space	Awareness of Space	Near/Far Illusion and 2-D Surfaces Perspective by Overlapping Perspective by Diminishing Colours and Depth One-Point Perspective - Horizon Line, Vanishing Point	One-Point Perspective Depth Through Colour Change Background, Middleground, Foreground

Design Elements/ Principles	1 - 2	3 - 4	5 - 6
Movement	Body Movement to Music Line Describing Movement	Line Direction to a Focal Point Mobiles: Constant Change Drawing to Music	Lines in Nature Motion Lines Movement Through Colour Placement
Balance		Symmetrical, Radial	Symmetrical Asymmetrical Radial
Rhythm		Repetition/Pattern	Through Repetition of Pattern, Colour, Shape, Etc.
Contrast		Of Colours, Textures, Movement, Space, Mood	Of Shape, Size, Colour, Value, Texture
Emphasis			Focal Point, Centre of Interest Colour for Emphasis
Unity/Harmony			Relationship of Elements Unity Through Repetition, Proximity With Variety

THE ADOLESCENT STAGE OF VISUAL DEVELOPMENT

To provide an appropriate approach to art education in grades 7-9, this program takes into account the intellectual and social development of young adolescents. The curriculum is designed to work in harmony with the adolescent's changing imagination which, at this stage, moves out of the unconscious and manifests itself in a critical awareness of the environment and the skills used in artistic production.

In his description of the developmental stages of artistic growth, Victor Lowenfeld states that schematic generalizations are no longer sufficient for the young adolescent student: ". . . the modes of expression of the preceding stage are no longer suitable to express increasing awareness."[1] Students are moving into a stage of development in which they feel the form of expression needs to resemble nature more closely. They perceive a need for greater and more accurate detail in their drawings in order to bring out those components they wish to emphasize. Drawings become more formalized, less spontaneous; movement and emotion become stiff and formal. Students strive to produce more naturalistic art, their drawings depicting the outside environment rather than representing the egocentric self. Perspective becomes more important as a means of creating a naturalistic illustration of the environment, creating depth within the picture plane and incorporating value changes for increased representation. This curriculum guide, therefore, outlines activities that help students to develop both their visual awareness of the environment and their ability to use technical skills proficiently.

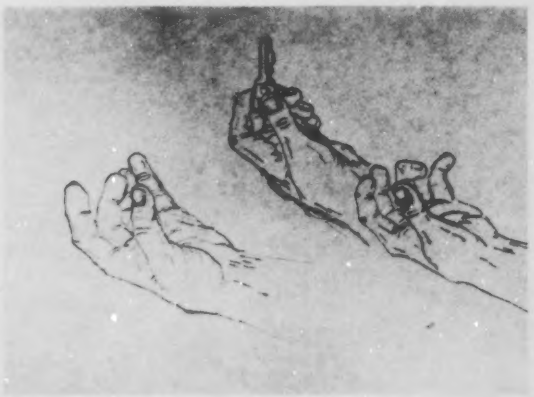


Lowenfeld also points out that young adolescents, in an attempt to find self-identity, conform with peers in dress, behaviour and values. An art program can potentially aid students in developing self-expression rather than the expression of peer values. Through a variety of studio art activities, students can find a means for achieving personal identity. "The focus of these . . . should clearly be on the process of making art and not on the art itself."[2]

Awareness of how artists have expressed their own personal vision in their works can also aid the student in the processes of defining him- or herself. Therefore, opportunities for students to look at artists' works, past and present, and to discuss their reactions to these works are essential components of the art program. These discussions are also recommended as a way to develop student awareness of the technical, expressive and aesthetic content in art. Throughout the units of this guide, activities exposing students to artists' works are suggested.

Research indicates that at about age twelve a student's art expression can be identified along a continuum between visual and haptic.[3] These terms refer to the student's perceptual organization and conceptual categorization of the world and represent opposite extremes in interpretation of the environment.

The visually-minded, who observe the environment primarily through their eyes, are basically observers rather than participants, and are more objective in their reactions to the environment.



"The visually-minded individual can analyze the characteristics of shape and structure of an object and can be concerned with the changing effects of these shapes as they are influenced by light, shadow, color, atmosphere, and distance. How something looks is of prime importance, and even tactile sensations are translated into visual form."[4]

Haptic individuals react emotionally, have a greater awareness of their own body sensations and are more subjective in their reactions.

In contrast to visualizers who tend to perceive the whole before the details, the haptic tend to perceive the details initially. They react to the environment through physical sensations and sense awareness: "The haptic person enjoys textures and feels objects pleasurably with the hands. There is no attempt at trying to translate these textures into a visual image. The art of the haptic is more subjective. The artist himself becomes a part of the picture, and in his pictorial representations, subjective values determine the color and form of objects."[5]

Examples can be found in art history that demonstrate both visual and haptic artists or works of art. For example, classic Greek sculpture or the sculptures of Michelangelo are visual, in contrast to medieval sculptures or African sculpture which are haptic. At one end of the continuum of expression are works which are realistic and representational; at the other end are those which are symbolic and emotionally oriented. Most junior high school students are somewhere between these two extremes of expression, often fluctuating from one to the other.

However, it is still important that teachers be aware of these perceptual differences which influence student response to the environment. To accommodate both haptic and visual students, teachers should keep in mind that haptic expression does not represent an earlier stage of development which individuals outgrow as they move towards visual expression. Since both are valid responses to the environment, neither indicating greater or lesser ability, both should be valued equally. Teachers should also keep in mind that haptic individuals should be encouraged to become more visual, and visual individuals more haptic; that is, for learning to take place in its fullest sense, individuals should be encouraged to experiment with a form of expression other than the one natural to them. To elicit emotional response and content from all students, for example, teachers might adopt thematic exercises for several lessons.

As the foregoing indicates, the junior high school art program needs to be diverse in approach, incorporating activities and exercises that help students to develop both artistic skills and individual expression. It should also allow students to react verbally to art, both past and present.

THE SPECIAL STUDENT

The Socially Disadvantaged

Studies conducted by W. Elliot Eisner[6] conclude that there is little difference in skill abilities between students from advantaged and disadvantaged backgrounds at the adolescent level, insofar as it can be assumed that they have encountered similar programs of art instruction in elementary school. Unlike other subject areas where student abilities may vary significantly, art is one area in which junior high students of different backgrounds develop at a similar rate. No modification of the program, then, is necessary for these students.

The Physically and Mentally Handicapped

To develop an art program suitable for students who are physically or mentally handicapped, teachers can acquire a copy of Education for Independence from the Department of Education, Curriculum Development and Implementation Branch. Education for Independence provides an example of how a regular program of art activities can be modified to meet the needs of special students.

DESIGN OF THE GUIDE

This curriculum guide is designed to continue the line of development of student skills emphasized in the elementary K-6 guide and support materials. The emphasis of the K-6 curriculum materials on art elements, concepts, and principles is maintained throughout this guide to establish a continuity in learning from kindergarten through grade nine.

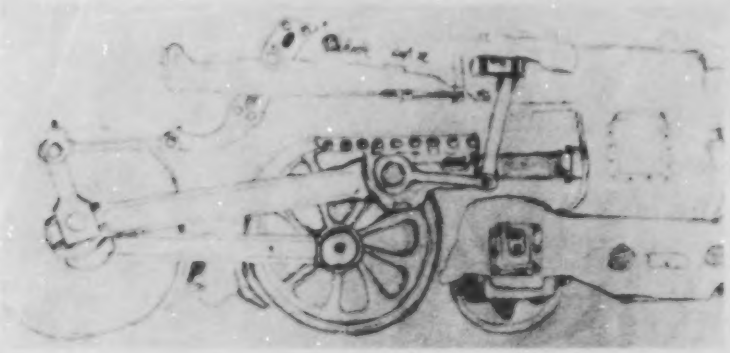
The curriculum guide has been organized into eight units--Design, Drawing, Painting, Printmaking, Sculpture, Ceramics, Fibre Arts, and Photography. The first unit, Design, is a reference section and, as such, is uncharacteristic of the other units. Instead of outlining learner objectives, activities, and references, the section provides, first, a brief discussion of each of the elements and principles of design and, then, suggestions, contained in chart form, on how to develop an element or principle across the units, using the suggested activities in those units. The Design Section recommends an approach to teaching art, to using the material in the other seven units, but may also be used as a separate area of study.

The remaining units contain sequences of activities over the three grades that are keyed to the learner objectives. An attempt has been made to develop objectives and activities sequentially. It is important for the development of student skills and understanding that teachers implement a sequential program.

Each unit is presented in a three-column structure. The first column contains the Objectives for student learning that specify either skills or concepts to be acquired in the course of study. The second column contains Suggested Activities that are derived from the objectives in the preceding column. These can be used to develop skills, concepts, and perceptual awareness and to encourage student growth from grade to grade. The third column, Emphases/References, contains statements concerning the focus of each lesson or activity as well as information crucial to the teaching of the lesson. It also contains references to the recommended text, The Creative Eye,[7] the recommended teacher reference, Design Basics,[8] and to other supplemental sources including Art Media and Techniques: A Resource Book for Secondary Schools which is available from the Department of Education.[9] Full citations for books are not given in the text but can be found in the bibliography that follows each unit. Also, in the third column are references to visuals and to artists whose works are particularly useful in developing perceptual and aesthetic awareness. If an artist is Canadian, a (C) appears beside his or her name, if a Manitoban, an (M).

Following each unit is a Glossary of Terms that gives definitions of terms and techniques introduced in the unit; a Historical Chart that provides a perspective on artistic movements and artists within each of the disciplines; and a Bibliography that contains full references for those books cited in the text as well as references for other helpful materials. At the end of most units can be found a list of recommended materials, and at the end of some there are additional items, for example, instructions on where to find or how to make materials, descriptions of processes and techniques as well as suggestions of supplementary resources, ideas for field trips, etc.

Preceding the units and immediately following this general introduction is a section on Art Appreciation. The text describes an approach to teaching art appreciation and precedes eight colour reproductions of the works of Manitoba artists that can be used in the classroom. Teachers are encouraged to familiarize themselves with the approach or to develop a similarly systematic method of teaching this important component of the 7-9 program.



PROGRAM IMPLEMENTATION

This curriculum guide allows for flexibility, enabling teachers to begin their programs with any one of the units. Further, since the units are not arranged in any specific order, a range of variations throughout the program is possible.

Teachers may wish to organize their programs around the units given, following the outlined objectives and activities for each grade. A grade eight program might, for instance, begin with a unit on painting. Teachers may find the number of suggested activities sufficient or may want to add or substitute other exercises relevant to the objectives.

Alternately, teachers may wish to implement a program organized around specific elements--line, texture, etc.-or concepts and principles--rhythm, space, unity, etc. The design section preceding the

units of study allows a teacher to select those elements or concepts to be taught and the corresponding objectives and activities from various units; e.g., a grade eight unit developed around the element of line may incorporate objectives and activities that deal with an emphasis on line selected from the drawing, fibre arts, or printmaking units, etc.

Traditionally, core modes of expression in art have been recognized as drawing, painting, printmaking, and sculpture. A balanced program should include experience in these traditional modes as well as in both two-dimensional and three-dimensional activities from other modes.

Time Allotment

To achieve the goals of this program, it is recommended that a minimum of 120 minutes per six-day cycle be alloted, including at least one uninterrupted double period. Time required for teacher instruction and demonstration as well as for student involvement in the activities and cleanup indicates that double art periods are essential to a quality art program.

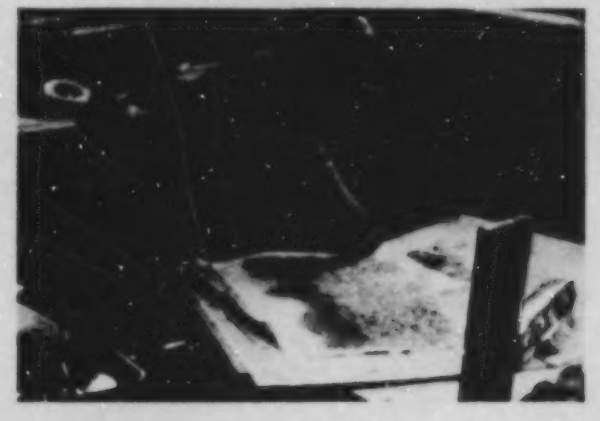
Class Size

For effective and safe implementation of an art program, it is suggested that the number of students per class be limited to between 15 and 20 students, as is the case in the practical arts.

Facilities and Budget

Adequate facilities are essential for the effective implementation of an art program. The art room should be of sufficient size to allow a class of students to carry out the studio components outlined in this guide. Necessary equipment, such as a sink and running water, storage facilities, and basic tools, is also essential in maintaining a quality art program.

A budget which supplies sufficient materials--paper, paint, brushes, clay, etc.--is necessary to implement this guide. (See the list of equipment and supplies at the end of each unit.)



Evaluation

Evaluation of student work in an art program is one of the teacher's most difficult tasks. Adherence to Eisner's recommendation[10] that evaluation be an ongoing process which constantly reflects the learning objectives is recommended.

Student performance should be assessed on the basis of individual progress and achievement throughout the program. Individuals should be evaluated on their participation in classroom discussions and on their understanding of art principles and fundamentals as demonstrated in their art products.

The final mode of reporting can vary from letter or numerical grade to written comments, depending on individual school requirements and on the approach used by individual teachers; but in all cases, evaluations should be based on the development of technical and expressive skills, understanding, and attitudes displayed by students throughout the program.

FOOTNOTES

[1] Victor Lowenfeld, Creative and Mental Growth, 5th ed. (New York: Macmillan, 1970), p. 193.

[2] Lowenfeld, p. 224.

[3] Jean Piaget and Barbel Inhelder, The Child's Perception of Space, trans. F. G. Langdon and J. L. Lunzer (New York: Routledge and Kegan Paul, 1967), pp. 16-18, 46-52, 175, 193.

[4] Lowenfeld, p. 240.

[5] Lowenfeld, p. 240.

[6] W. Elliot Eisner, Educating Artistic Vision (New York: Macmillan, 1972), Chapter 5.

[7] K. Fearing, et al., The Creative Eye (Austin, Texas: W. S. Benson, 1979).

[8] D. A. Lauer, Design Basics (New York: Holt, Rinehart and Winston, 1979).

[9] Manitoba Department of Education, Art Media and Techniques: A Resource Book for Secondary Schools (Winnipeg: The Department, n.d.).

[10] W. Elliot Eisner, Educating Artistic Vision (New York: Macmillan, 1972), Chapter 8.

art appreciation

ART APPRECIATION

Helping students to understand and appreciate works of art is an important goal of the art program. Just as the language arts program includes study of the works of professional writers, so should the visual arts program include the study of works of professional artists.

An approach to understanding visual communication should begin early. Regular exposure to slides and reproductions, class discussions, and trips to museums and art galleries will encourage students to approach art of many styles and periods with interest and a willingness to understand. Skills in perception can be strengthened by having them attend to detail which might otherwise be overlooked.

Most adults have difficulty understanding and evaluating works of art which do not approximate photographic realism. Many of the reasons for this difficulty--stereotyping, lack of information, reluctance to visit art galleries, pre-judgement--can be anticipated and overcome by regular, early exposure to various forms of visual communication.

In this guide, works of art are introduced as references in each lesson and can be used to encourage discussion about the ways in which artists develop themes or subject matter as well as use various media and techniques. They can also be used to illustrate particular aspects of design. An "art history" section at the end of each unit allows for the placing of a work of art within an historical frame of reference. Students should be encouraged to view works of art in order to better understand fundamentals of visual communication and how they apply to their own artistic expression.

However, looking at only one aspect of a particular work such as its colour harmonies, treatment of subject, or technique is not sufficient to understand the artist's purpose. Occasionally, a more in-depth analysis should be made of a work to give students an approach to works of various styles and modes of expression. One such approach is suggested by Edmund Burke Feldman in Becoming Human Through Art.[1] Feldman describes a four-step procedure which could be used in a class discussion of a work of art--whether it be a student work, a reproduction, or a slide. As the tendency to make a quick judgement from a general impression often prevents further "looking" and understanding, Feldman attempts to delay the "judgement" stage until students have processed as much of the visual information as possible.

The first stage in the Feldman approach is description. Having students describe everything they see in a work of art--the colours, shapes, textures, medium, and techniques used, as well as the subject matter or objects presented--forces them to look carefully at every detail in the work. The nature of the description will, of course, vary from one work of art to another. Whereas a work such as Esther Warkov's Surveyor in the City of Lost Dreams can be described in terms of actual objects and figures, the works of Tony Tascona or Don Reichert demand a description of shapes, colours, and textures. Once students become used to describing the design aspects of a representational work, they will have little trouble identifying the same aspects of a work which is non-representational.

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[1] Edmund Burke Feldman, Becoming Human Through Art (New Jersey: Prentice-Hall Inc., 1970), p. 348.

The second step, in Feldman's method, analysis, requires students to see the relationships between the various parts--comparative sizes, positions, degrees of brightness, colour, etc. Questions such as, "Are the figures looking at or touching each other?" Does one area (or object) seem more important than the others?" or "Do certain shapes or colours seem to predominate?" are questions to be considered under analysis.

The third step, interpretation, should be seen as an attempt to narrow down the possibilities, rather than to find a single, one-line explanation for a particular work. Each viewer comes to a work with a unique set of expectations, experiences, associations, and observations. These will affect the way in which the work is interpreted. In some cases, a full understanding of a work may require that students be given some relevant information about the work or about the artist. The time period or country in which the work was produced, the materials used, or the size of the original work may be significant factors. Jackson Beardy's Rebirth demands of the viewer some knowledge of the artist's use of symbols to relate an idea or concept. Generally, the only sense in which an interpretation can be "wrong" is if it seems completely inconsistent with the visual information presented. Within a range of possible interpretations, however, most students can gain an understanding of some aspect of a work of art--the artists' interpretation of the subject, a mood or feeling, a narrative theme or event.

It is important for students to understand that different works have different purposes and that these purposes range from the representational to the abstract. The more exposure students have to different styles and modes of art that have different meanings or purposes, the more apparent this will become.

Exposure to a variety of works, combined with some experience in design, art production, and art history, will give students a framework for the fourth step in the Feldman approach--judgement. Vincent Lanier, in The Arts We See, says, ". . . the more one knows about a work of art, the better one understands it and, therefore, the better chance one has to make a fair judgement about it."[2]

Whether or not a work is "liked" may have to do with associations made by the viewer which are beyond the artists' control. However, increased experience in basing judgements on observation and an attempt at understanding will open students to the myriad of ideas, thoughts, and feelings expressed in visual art. Visual literacy, like verbal literacy, is an important part of learning.

The following section includes eight representative art works by living Manitoba artists. It is important for students to be aware that art is being produced in their community and to know about living artists and their works. This section offers a starting point for developing skills in art appreciation. Students can view and compare a variety of styles. Each art work offers unique insights into the expressive and technical nature of art--what artists are saying and how they are saying it. As in all art works, the Feldman approach will help students to value works of art and provide a legitimate basis for their tastes.

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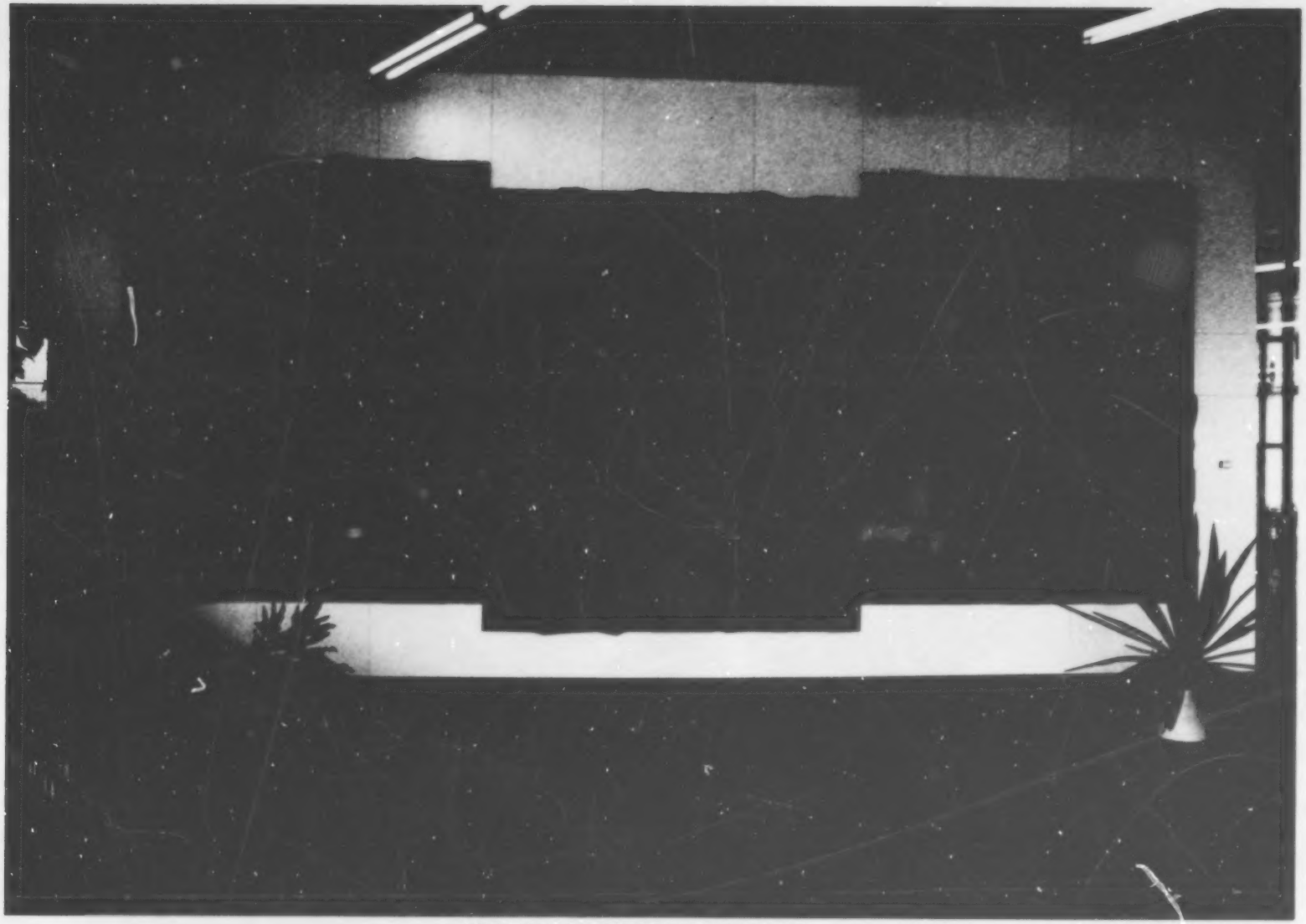
[2] Vincent Lanier, The Arts We See: A Simplified Introduction to the Visual Arts (New York: Teachers College Press, 1982), p. 87.

JACKSON BEARDY. *Rebirth*. Ink and gouache on bristol board. 42 × 52 cm.

KEN CHERNAVITCH. *Untitled.* Talc clay body, low-fired oxidation. 41 × 24 cm.

AGANETHA DYCK. *Changes*. Matting. 305 × 1211 × 606 (depth) cm.



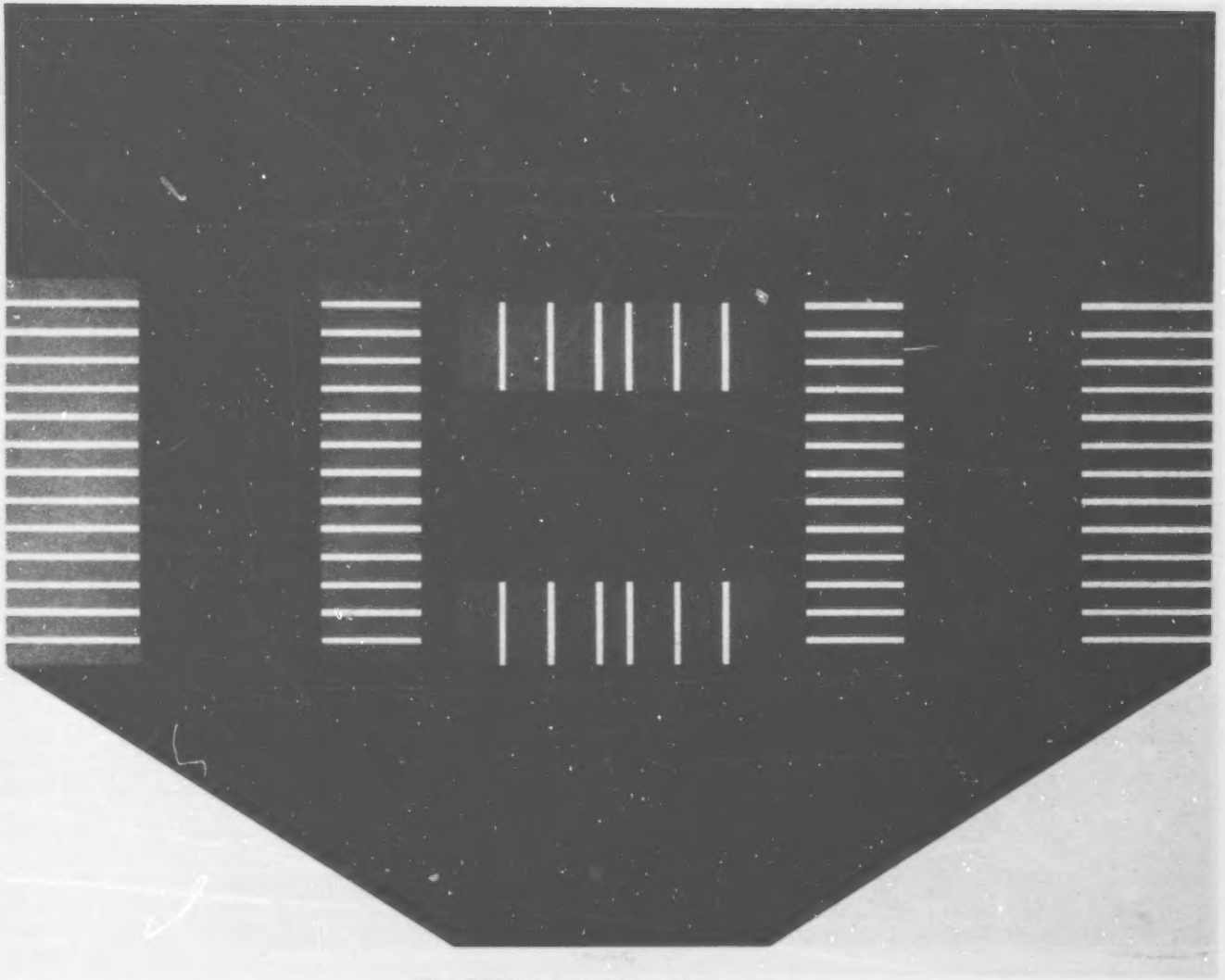
BRUCE HEAD, RCA. *The Woodsworth Wall.* Acrylic on shaped canvas. 305 × 762 cm.

LUELLA LEVITT. *Gerald*. Oil on canvas. 213 × 122 cm.

DON REICHERT, RCA. *Summer Wild.* Acrylic on canvas.
172 × 244 cm.

79A

79B



TONY TASCONA, RCA. *Re-Entry.* Silkscreen print (Grand Western Canadian Screen Shop, Winnipeg, Bill Lobchuk, Master Printer), 54 × 69 cm.

ESTHER WARKOV, RCA. *Surveyor in the City of Lost Dreams.* Oil on linen. Circle: 56 cm diameter; horizontal panel: 56 × 66 cm; vertical panel: 168 × 81 cm.

design

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DESIGN

Composition is a major component of any art work, no matter what medium is employed. It entails the organization of visual devices the artist has at his or her disposal. These visual devices are known as the elements of art--line, shape, texture, and colour--and their organization may be broken down into the principles of art--emphasis, balance, variety, space, rhythm, and, most important, unity.

Just as there is no definite set of rules in art, there is no total agreement as to what constitutes the list of elements and principles. They are defined differently by each artist and art historian. Generally, however, the list and definitions in this guide,which are taken from the text, will help teachers of intermediate students to articulate the design component of the objectives in this curriculum.

Following each brief description of respective principles and elements, there is a chart that will direct the teacher to sections of the curriculum in which they are to be found. The text, Design Basics, by David Lauer (New York: Holt, Rinehart and Winston, 1979), will expand on the descriptions given here.

The teacher wishing to construct a course that emphasizes design concepts may use the following charts which "plug in" design concepts to the curriculum guide.

ELEMENTS OF DESIGN

The following elements of design--line, shape/form, colour, and texture--are the components that can be manipulated to create an organized work of art.

Line

A line may be defined as a moving point. Lines may be produced by a variety of media, and experimentation with each medium will result in an infinite number of lines displaying different characteristics. Variation of the type, direction, and characteristics of a line provides means of expression and may evoke a series of emotional responses. Line may be used to create value and texture, define shape and spatial relationships, and record action. Line may also be used to provide rhythm, continuity, unity, and so on in a composition. Despite the fact that there are no actual lines in nature, line is probably the most often used of the art elements.

Teaching Line

The following references point out sections of the curriculum that may be used to teach the element, line. Line is a tool for 1) unification (rhythmic and decorative effects), 2) description (of shape, form, gesture, movement, spatial position), 3) expression.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7	Line: Contour (Description)
	7	Line: Gesture (Description)
	8	Line: Contour (Description)
	8	Line: Contour (Expression)
	8	Line: Gesture (Description; Expression)
	9	Line: Contour (Description; Expression)
	9	Modelling-Perspective (Description)
PAINTING	9	Interaction of Colours-Op Art (Unification)
PRINTMAKING	7	Planography: Monoprint (Unification; Description; Expression)
	7	Intaglio (Description; Expression)
	8	Intaglio (Description; Expression)
	9	Intaglio (Unification; Description; Expression)
SCULPTURE	8	Subtractive-Contours (Unification; Expression)
	8	Assemblage-Mobile (Unification)
	8	Other Processes: Linear Sculpture (Description of Space and Volume)
	9	Additive (Unification; Expression)
FIBRE ARTS	7	Weaving (Unification; Rhythm; Description)
	7	Creative Sewing Techniques: Stitchery (Unification; Description)
	7	Dyeing: Tie and Dye (Unification)
	8	Weaving (Unification)
	8	Dyeing: Batik (Unification; Description)
	9	Weaving (Unification)
PHOTOGRAPHY	7	Hand-Made Film (Description)
	7	Flip Book (Description)
	9	Storyboards (Description)

Shape/Form

A shape may be defined as an area enclosed by a line or separated by a change of colour, value, or texture. Shape, often called form, is usually referred to in three-dimensional art as mass or volume. Whether defined by hard or softly blended edges, a shape will be either geometric or organic. Shapes may be symbolic, abstract, ideal or distorted, and like lines, may be expressive or evoke emotional feelings.

Teaching Shape

The following references point out sections of the curriculum that may be used to teach the element, shape.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7	Line: Contour
	7	Modelling
	7	Composition-Positive/Negative
	8	Modelling
	9	Modelling
	9	Composition-Textured, Non-Objective
PAINTING	7	Introduction to Colour-Mixing-Complementary Colours
	8	Value
	8	Analogous Colours
	9	Interaction of Colours-Advancing/Receding Colours
	9	Interaction of Colours-Op Art
PRINTMAKING	7	Planography: Monoprint
	7	Relief: Collograph
	7	Serigraphy: Paper Stencil
	8	Relief: Reduction
	9	Relief: Reduction
	9	Serigraphy
SCULPTURE	7	Subtractive
	7	Assemblage
	8	Subtractive (Emotive Properties)
	8	Additive-Positive/Negative
	8	Assemblage
	9	Subtractive-Positive/Negative
	9	Assemblage-Relationships

DISCIPLINE	GRADE	LOCATION IN GUIDE
CERAMICS	7	Hand-Building
	8	Hand-Building
	9	Hand-Building
	9	Wheel-Throwing
FIBRE ARTS	7	Dyeing: Tie and Dye
	8	Creative Sewing Techniques: Patchwork and Quilting
	8	Dyeing: Batik
	9	Creative Sewing Techniques: Soft Sculpture
	9	Dyeing: Screen Printing
PHOTOGRAPHY	7	Hand-Made Slides
	7	Flip Book
	7	Hand-Made Film
	8	Photograms

Colour

Colour is a visual response to light reflected from a surface and is sometimes perceived as a characteristic of that surface. Pigment, on the other hand, is a substance that imparts colour. Experimenting with the physical properties of pigment--hue, value, and intensity--produces a wide range of colours. A colour produces an immediate emotional response in the viewer, a fact that the artist exploits when using colour in symbolic ways or in harmonious or discordant combinations. Colour may be used to enhance the other elements--providing linear variations, defining space and so on--and plays a significant part in attaining unity, variety, harmony, emphasis, and contrast in a work of art.

Teaching Colour

The following references point out sections of the curriculum that may be used to teach the element, colour, with regard to its physical and emotive properties.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7	Modelling-Colour vs. Value
PAINTING	7	Introduction to Colour-Mixing--Primary, Secondary, Complementary Colours
	7	Value
	7	Colour Wheel-Tertiary Colours
	7	Warm/Cool Colours
	8	Analogous Colours
	8	Value-Monocromatic Colour
	8	Optical Mixing: Pointillism
	8	Advancing/Receding Colours
	8	Interaction of Colours
	8	Emotional and Symbolic Aspects of Colour
PRINTMAKING	7	Serigraphy: Paper Stencil (Physical; Emotive Properties)
	8	Relief: Reduction-Multi-Colour
	8	Serigraphy: Block-Out (Physical Properties)
	9	Relief: Reduction-Colour (Physical Properties)
SCULPTURE	7	Additive-Masks (Emotive Properties)
	7	Assemblage (Physical Properties)
	8	Other Processes: Wire Sculpture (Physical and Emotive Properties)

DISCIPLINE	GRADE	LOCATION IN GUIDE
CERAMICS	8	Hand-Building-Surface Decoration
	9	Relief Sculpture-Mask
FIBRE ARTS	7	Weaving (Physical Properties)
	7	Dyeing: Tie and Dye (Physical Properties)
	8	Weaving (Physical Properties)
	8	Dyeing: Batik (Physical; Emotive Properties)
	9	Weaving (Expressive Properties)
	9	Creative Sewing Techniques: Soft Sculpture (Expressive Properties)
	9	Dyeing: Screen Printing (Physical Properties)
PHOTOGRAPHY	7	Hand-Made Slides (Expressive Properties)
	7	Hand-Made Film (Expressive Properties)
	9	Film Animation (Expressive Properties)

Texture

Texture is a characteristic of the surface of a material. Texture may be actual, as in three-dimensional art forms, or simulated. In the field of graphic art, careful use of value, line, and colour may produce the illusion of texture. While texture may cause some emotional response, its greatest importance is as a decorative element contributing contrast and variety to a work of art. Although there are often similarities between pattern and texture, the latter demands more than a visual response.

Teaching Texture

The following references point out sections of the curriculum that may be used to teach the element, texture.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7	Line: Contour
	9	Line: Contour
	9	Composition
PAINTING	7	Exploration
PRINTMAKING	7	Planography: Monoprint
	7	Relief: Collograph
	8	Relief: Reduction
	9	Relife: Reduction
	9	Intaglio: Engraving
SCULPTURE	7	Subtractive
	7	Assemblage
	8	Subtractive
	9	Subtractive
CERAMICS	7	The Nature of Clay
	7	Hand-Building
	8	The Nature of Clay
	8	Hand-Building
	9	The Nature of Clay
	9	Hand-Building
	9	Relief Sculpture

DISCIPLINE	GRADE	LOCATION IN GUIDE
FIBRE ARTS	7	Weaving
	7	Creative Sewing Techniques: Stitchery
	7	Dyeing: Tie and Dye
	8	Weaving
	8	Dyeing: Batik
	9	Weaving
	9	Creative Sewing Techniques: Soft Sculpture
PHOTOGRAPHY	8	Photograms

PRINCIPLES OF DESIGN

The following principles of design deal with effective organization of a work of art.

Unity/Harmony

Unity is the achievement of coherence in art work. It is the bringing together of all the elements and principles into a harmonious whole. The organization of a work should make sense visually. This may be achieved by grouping objects related to one another, repeating elements, or providing continuation, thus leading the viewer through the composition.

Variety

Variety is unity's corollary. It adds interest to a composition. Stress on a single principle--balance, focal point, and so on--may provide harmony but may equally cause monotony. Through manipulation of the elements and size of elements, variety may be achieved to add the surprise or extra interest needed in a composition. Too much variety is undesirable if it leads to confusion or lack of unity in the whole work.

Teaching Unity/Harmony and Variety

Although the striving for unity and variety is a concern of all art-making activities, the following sections of the curriculum provide particular opportunity to teach the principles of unification and variety.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7	Illusion of Space
	7	Composition-Positive/Negative Shapes
	8	Line: Gesture
	8	Modelling
	8	Composition-Positive/Negative Space
	9	Line: Contour
	9	Line: Gesture
	9	Modelling
	9	Illusion of Space
	9	Composition-Negative Space

DISCIPLINE	GRADE	LOCATION IN GUIDE
PAINTING	7	Introduction to Colour-Mixing-Complementary Colours
	7	Value
	7	Warm/Cool Colours
	8	Analogous Colours
	8	Optical Mixing: Pointillism
	8	Advancing/Receding Colours
	9	Interaction of Colours
	9	Emotional and Symbolic Aspects of Colour
PRINTMAKING	7	Relief: Collograph
	8	Relief: Reduction
	8	Serigraphy: Block-Out
	9	Relief: Reduction
	9	Serigraphy
SCULPTURE	7	Assemblage-Relief
	8	Subtractive-Carving
	8	Other Processes-Mobile Construction
	9	Subtractive
	9	Assemblage
CERAMICS	7	Relief Sculpture
	8	Wheel-Throwing
	9	Hand-Building
	9	Wheel-Throwing
FIBRE ARTS	7	Weaving
	8	Weaving
	8	Creative Sewing Techniques: Patchwork and Quilting
	9	Weaving
	9	Dyeing: Screen Printing
PHOTOGRAPHY	7	Flip Book
	8	Photograms
	9	Storyboards
	9	Film Animation

Emphasis/Focal Point

A focal point is the dominant element in a work of art, the point at which attention focuses. Such emphasis may be established by using contrasting elements or those of different sizes, by isolating the point of major interest, or by having elements lead to it. A focal point in art may guide the viewer to a particular "starting place" but must be subtle enough to encourage further examination of the whole. Emphasis may be ignored if the theme of the work does not demand it, as in the printing of fabric, for example.

Teaching Emphasis

The following references point out sections of the curriculum that may be used to teach the principle of emphasis.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7 8 9	Illusion of Space Illusion of Space Modelling
PAINTING	7 9	Introduction to Colour-Mixing Emotional and Symbolic Aspects of Colour
PRINTMAKING	7 8 9	Relief: Collograph Relief: Reduction Relief: Reduction
SCULPTURE	7	Assemblage
PHOTOGRAPHY	8 9	Photograms Film Animation

Balance

Balance in art is the felt visual equilibrium in a work provided by a manipulation of the elements and the size of elements used. Formal balance may be radial or symmetrical. Symmetrical balance is achieved by placing equal elements on either side of a vertical or horizontal axis; radial balance is achieved by placing elements around a central focal point. Assymetrical or informal balance is the creation of equilibrium in a composition by balancing unequal elements without necessary consideration of a central axis. Stability in a work of art is desirable if uneasiness or discomfort on the part of the viewer is to be avoided.

Teaching Balance

Although the principle of balance is important in the designing of all art works, it can be particularly emphasized in the teaching of the following areas.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7 7	Illusion of Space Composition-Modelling
PAINTING	7 7 9	Introduction to Colour-Mixing--Complementary Colours Value Emotional and Symbolic Aspects of Colour
PRINTMAKING	7 7 8 9	Relief: Collograph Serigraphy: Paper Stencil Relief: Reduction Relief: Reduction
SCULPTURE	7 8 8 9	Additive Subtractive Other Processes: Wire Sculpture Assemblage
CERAMICS	8 9	Relief Sculpture-Mask Relief Sculpture-Mask
PHOTOGRAPHY	8	Photograms

Space

Two-dimensional space, or decorative space, is the interval between elements on a surface. In three-dimensional art, space is that area enclosed by or occupied by mass. The illusion of three-dimensional space on a two-dimensional surface, that is, plastic space, is gained and governed by the use of perspective systems. In Western art, mathematical linear projections, combined with the use of other elements and the manipulation of these elements, are used to create this illusion. Space may be occupied (positive elements in 2-D, mass in 3-D) or unoccupied (negative elements in 2-D, void in 3-D), and it is in the balancing of both types of space that provides unity in a work of art.

Teaching Space

The following references point out sections of the curriculum that may be used to teach principles of spatial organization.

Section I deals with the organization of two-dimensional space--either decorative space or the illusion of three-dimensional space.

Section II deals with the organization of three-dimensional space.

SECTION I: 2-D SPACE

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7	Line: Contour (Illusory Space)
	7	Illusion of Space
	7	Composition (Positive/Negative Space)
	8	Illusion of Space (Perspective)
	8	Composition (Positive/Negative Space)
	9	Line: Contour (Depth in Space)
	9	Illusion of Space (Perspective)
PAINTING	8	Advancing and Receding Colours (Flat or Illusory Space)
	9	Interaction of Colours
PRINTMAKING	7	Intaglio-Drypoint (Illusory Space)
	7	Serigraphy: Paper Stencil (Negative/Positive Space)
	8	Intaglio: Engraving (Illusory Space)
	9	Intaglio: Engraving (Illusory Space)
PHOTOGRAPHY	7	Hand-Made Film (Movement in 2-D Space)
	8	Pin-Hole Camera (Illusory Space)
	9	Film Animation (Movement in 2-D Space)

SECTION II: 3-D SPACE

DISCIPLINE	GRADE	LOCATION IN GUIDE
SCULPTURE	8 8 9 9	Additive (Positive/Negative 3-D Space) Other Processes: Wire Sculpture (Movement in 3-D Space) Subtractive (Positive/Negative 3-D Space) Additive
CERAMICS	8 9	Hand-Building Hand-Building (The entire unit provides unique opportunities to teach this principle and to consider the relationship of interior and exterior space.)

Rhythm

Rhythm is the patterned repetition of elements (shape, line, colour, texture) in a work of art. These elements may recur unchanged or slightly modified to create a sense of visual movement. Visual rhythms may flow or stop abruptly, be subtle or strident.

Teaching Rhythm

The following references point out sections of the curriculum that may be used to teach the principle of rhythm.

DISCIPLINE	GRADE	LOCATION IN GUIDE
DRAWING	7	Line: Contour
	7	Line: Gesture
	8	Line: Gesture
	9	Line: Gesture
PAINTING	9	Interaction of Colours-Op Painting
PRINTMAKING	8	Serigraphy: Block-Out
SCULPTURE	8	Subtractive
	8	Other Processes: Wire Sculpture
	9	Assemblage
FIBRE ARTS	7	Weaving
	7	Dyeing: Tie and Dye
	8	Weaving
	8	Creative Sewing Techniques: Patchwork and Quilting
	9	Weaving
	9	Dyeing: Screen Printing
PHOTOGRAPHY	7	Flip Book
	7	Hand-Made Film
	9	Film Animation

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DRAWING

"Drawing is the basic language of art. Sculptors, printmakers, painters, architects and clothing designers use drawing to communicate their basic ideas. Other artists and designers use pencils or pens to doodle, write visual notes, express thoughts, and otherwise communicate with their fellow workers. Drawing is basic to visual communication. It is also a function of the artist that never stops, no matter what degree of excellence artists achieve. It is their main method of visual communication."[1]

Drawing is possibly the oldest, most spontaneous and immediate mode of human expression, and as such deserves to be encouraged and developed as fully as possible from an early age. For the beginning student, drawing provides a means of describing or recording observed phenomena, acts as a tool in preliminary planning for artistic expression, stimulates creative thinking, develops sensitivity to the art elements and principles, sharpens sensory impression, and, finally, trains visual memory.

While drawings can be an "end in themselves," they can also be related to other areas of art. Many artists working in other media find it convenient to to use preliminary sketches to give the first graphic representation of an idea.

Approached traditionally, drawing stresses seeing, understanding, and interpreting the environment. As Kimon Nicolaides suggests, "learning to draw is really a matter of learning to see . . . to see correctly . . . and that means a good deal more than merely looking with the eye. The sort of 'seeing' . . . is an observation that utilizes as many of the five senses as can reach through the eye at one time."[2] A student's growth in drawing depends on his or her ability to perceive keenly and selectively, to clarify, to transform experiences, ideas and feelings, and to develop and refine motor control.

The drawing areas to be covered are line, contour and gesture, modelling, illusion of space, and composition. At each level, initial emphasis is placed on the development of drawing skills which respect the two-dimensional drawing surface; later emphasis is placed on the exploration of possibilities for creating the illusion of three-dimensional space on a flat surface.

The recommended teacher resource for the unit is Nicolaides' The Natural Way to Draw.

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[1] Gerald F. Brommer, Pref., Drawing (Worcester, Mass.: Davis, 1978), p. 6.

[2] Kimon Nicolaides, The Natural Way to Draw (Boston: Houghton Mifflin, 1969), p. 5.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	LINE: CONTOUR	
The student shall:	Have the student:	
Gain an understanding of the way in which line may be used to describe the edges or contours of a form.	Observe the outer edge of a simple form such as an apple; note that the edge of the form can be translated mentally into a line that travels around the shape to define a silhouette.	Line is an invented device. One of its functions is to describe the separation between a form and its surrounding space.
	Follow these edges with a finger in space to describe the primary contour of the form.	Artists: Edgar Degas, J. A. D. Ingres, Henri Matisse, Rembrandt, Pablo Picasso, Amedeo Modigliani, Auguste Rodin
Develop the perceptual skills and hand-eye coordination required in producing contour line drawings.	Examine and compare continuous line drawings by such masters as Ingres, Rodin, Picasso, and Matisse.	Nicolaides, The Natural Way to Draw, pp. 9-13.
	Draw a continuous line defining the primary contour of the object without looking at the piece of paper being drawn upon, composing what is termed a 'blind' contour drawing.	Bro, Drawing: A Studio Guide, pp. 27 ff.
	Try to imagine the drawing implement actually touching the outside edge of the figure.	Brommer, Drawing: Ideas, Materials and Techniques.
	Draw other objects in a like manner until some competence in achieving a reasonable likeness is gained.	
	Draw a blind contour of a classmate.	Chaet, The Art of Drawing.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Examine the outer contours of a simple object, and then, without looking at the object, draw its contours from memory using a continuous line on paper. Draw the contours of objects and figures, looking from subject to paper and back again, but only to check briefly. The student should try to feel as if the pencil point is actually touching the contour of the object. Discuss Kimon Nicolaides' statement that to draw, one must develop a sense of touch as well as sight.	Nicolaides, The Natural Way to Draw, p. 6.
Observe the structure of linear forms, and develop skill in using line to record these forms.	Study the forms of objects that might be described as linear in structure, such as bare branches, grasses, telephone poles and lines; draw these with a line that seeks to express the rhythm of these objects; make the line thick and thin to correspond to the form as the eye travels along it.	Some objects are basically linear in structure, having little mass. Their structures may be expressed in line. Artists: L. Lemoine Fitzgerald (M), Ernest Lindner (C)
Observe textured surfaces and develop skill in using line to record these surfaces.	Study objects that have linear patterns or textures on their surfaces, such as driftwood, a weathered rock, a feather, a seashell, fungi, etc; use contour line to draw these objects, which are not of themselves composed of lines of contour, and then continue using line to describe the surface patterns within the form.	Some objects have surface patterns or textures which are not, strictly speaking, contours, but which may be rendered through the use of line.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	LINE: GESTURE	
The student shall:	Have the student:	
Become sensitive to the "gesture" inherent in the pose or position of a figure.	Look at the action line of figures drawn by Degas, Matisse, Daumier, Delacroix, and Michelangelo.	The artist feels a sympathetic response to the gesture, an awareness of what Nicolaides calls the "impulse" that caused the pose: fright, tension, etc. Artists: Edgar Degas, Henri Matisse, Honore Daumier, Eugene Delacroix, and Michelangelo Nicolaides, The Natural Way to Draw, pp. 23-31. Reinhold Visuals
	Observe figures in action poses and discuss the movements--especially the main one--being made.	H. Daumier, "A Clown," Line No. 15.
	Discuss how one is able to "feel" with the body the action of the object being drawn.	H. Edgerton, "Pole Vaulter," Movement No. 6. H. Matter, "Indian Dancer: A Study in Motion," Movement No. 17.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Observe the gesture of a total figure, and record it in a gesture drawing.	Draw the "stopped" action of a figure using a continuous, loose, flowing, (or "scribbled") line to capture the gesture. Practice drawing gestures and be able to describe in words or action each gesture represented in the drawing.	Line may be used to define or describe movement. Lauer, Design Basics, p. 1.
	MODELLING	
The student shall:	Have the student:	
Discriminate between values and develop methods for executing value gradations with a single medium.	Examine objects in the environment to see how light sources create gradations of value.	Gradations in value created by light in the environment help us perceive the volume of objects. Nicolaides, The Natural Way to Draw, pp. 139-143.
	Examine drawings to see how variations in value are used to describe volume.	Values may be created by varying either the proximity between lines or dots or the pressure applied to a medium. See Painting Unit.
Distinguish the difference between hue (colour) and value.	Experiment to create a variety of values; compare the effects achieved by hatching, cross-hatching, and stippling; apply various amounts of pressure to a medium such as pencil, charcoal, coloured crayon, etc., in order to create gradating values.	Artists: Georges Seurat, Vincent van Gogh, Rembrandt, Michelangelo, Thomas Eakins, Pierre Joseph Prud'hon, Ernest Lindner (C), Charlotte Werner (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Examine two photographs of the same scene, one in colour, one in black and white; discuss the difference between hue (colour) and value.	Objects of the same colour may not necessarily be of the same value, and objects having the same value may be different in colour. Reinhold Visuals R. Magritte, "Domains of Light," Light No. 1.
Develop skills in perceiving volumes of objects, and in reproducing them by means of graduating values.	Make several drawings of objects having relatively simple forms--bottles, boxes, etc.--using techniques suggested in previous activities to describe value.	K. Sonnier, "Positive-Negative," Light No. 18.
	ILLUSION OF SPACE	
The student shall:	Have the student:	
Observe indicators of spatial relationships (i.e., depth-in-space effects) in the environment and in drawings.	Examine ways in which similar objects (people, trees, etc.) change appearances as some are brought closer and some moved further away appear: - less detailed, - fainter in value, - smaller, - often overlapped by those closer, - at different levels in the visual field so that those above the horizon appear to move down towards it, and those below appear to move up.	Size, detail, placement and value variations may be used to define the position of objects in space, as well as to attain balance in a composition. Mendelowitz, Drawing: A Study Guide. McFee and Degge, Art, Culture and Environment Reinhold Visuals H. Bosch, "Adoration of the Kings," Color No. 6.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Demonstrate skill in using indicators of spatial relationships in a drawing.	Compose a drawing, using similar objects, that demonstrates the illusion of space and meets all of the conditions described above.	In drawings and paintings, space is an illusion created by the artist on a two-dimensional surface. In a composition which deals with the illusion of space, focal point is frequently established. Artists: Ivan Eyre (M), Toni Onley (C), Italian High Renaissance painters
	COMPOSITION	
The student shall:	Have the student:	
Observe the positive and negative shapes in a composition and be able to differentiate between them.	View examples of compositions in which the relationship between positive shapes and negative space can be discussed.	Unity in a composition may be gained by a balancing of positive and negative shapes. Lauer, Design Basics, pp. 190-195.
Observe "negative space" and record it by shading.	Use even shading (see Modelling Grade 7) to draw the empty space between and around a group of chairs without first outlining the chairs (i.e., see negative space as a positive shape).	Becoming conscious of negative space (that which surrounds an object) leads to more creative treatment in a composition. Bro, Drawing: A Studio Guide, pp. 44-48.
Develop ability to compose drawings using negative space.	Examine these drawings and discuss placement and balance of light and dark shapes. Practice negative space drawings of plants, mechanical equipment, etc., to achieve balance in compositions.	Reinhold Visuals K. Shaw, "Bicycle 1," Movement No. 7.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	LINE: CONTOUR	
The student shall:	Have the student:	
Develop an understanding of the difference between primary and secondary contour.	Observe the outer edges of a draped figure, noting in discussion that these edges often lead into the form itself, creating folds	Lines defining the outside edge of a form are primary contours; those within are secondary. Line may be used to describe a three-dimensional form on a two-dimensional surface. See Line: Contour, Grade 7 resources.
Refine skills required to produce a contour line drawing.	Use blind contour to draw the primary and secondary contours of a draped figure. The eye and hand should follow the same contour simultaneously. Continue composing contour drawings of figures and objects--gloves, shoes, plants, etc.--until reasonable likenesses are achieved.	
Observe that the direction and characteristics of a line can create an emotional response in the viewer.	Examine several drawings by various artists, discussing how different qualities of line can create different effects; observe that single straight lines tend to evoke different feelings, depending on their positions (for example, upright lines suggest stability, falling lines unrest, and horizontal lines repose); observe that while curved	Emotional qualities and mood can be attributed to line. Lauer, Design Basics, p. 156 and p. 160.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	lines have a recognized symbolic value--a line signifies a happy face when curved up, and a sad face when curved down--they also evoke feelings--a line curved up "feels" uplifting or strong, while one curved down "feels" droopy.	Artists: L. Lemoine Fitzgerald (M), Daphne Odjig (C), Jack Shadbolt (C)
Compose drawings that use line to evoke emotional response.	Capture in contour drawings the different moods of two similar objects, examples of which could include an old shoe and a new shoe; an energetic figure and a tired figure; or a dying plant and a healthy plant.	
	LINE: GESTURE	
The student shall:	Have the student:	
Improve his or her ability to see, feel, describe, and draw the gesture of a figure.	Practice gesture drawing from models in both "stopped" action and repetitive action poses; execute gesture drawings from memory.	A gesture drawing records movement in space.
Observe the gestural qualities of inanimate objects, and demonstrate an understanding of them.	Observe various inanimate objects such as trees, draped cloth, an old shoe, a vase, etc.; notice that each has an inherent gesture that might be described in terms such as soft and flowing, tense, graceful, proud, tired, etc.	The forces that shape a thing give it its gesture--a need for sun gives a tree its upward movement; a year's wear gives an old shoe its particular gesture, one which differentiates it from a new shoe.
Develop the skill of recording through spontaneous drawing the gesture of objects.	Practice gesture drawings of the objects listed above. Students should be encouraged to maintain a sensitivity to	The unique quality of line in a gesture drawing will contribute to unity.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	the inherent feeling of the gesture, be it flowing, tense, tired, etc.	Reinhold Visuals E. Trova, "Walking Man," Fantasy and Illusion No. 9. Computer Technique Group, "Running Cola in Africa," Movement No. 20. Nicolaides, The Natural Way to Draw, p. 30. Artists: Sheila Butler (M), John Marin, Max Weber
	MODELLING	
The student shall:	Have the student:	
Be able to differentiate between the different values reflected by various surfaces of an object.	Examine the basic three-dimensional shape of a cube, noting that it is made up of two-dimensional surfaces and that each plane reflects a different amount of light. Using the method of shading introduced in Grade 7, produce a drawing of this three-dimensional object which defines each surface seen.	Different light values are reflected by the surfaces of three-dimensional forms. Simons and Wine, The Creative Process, p. 144.
Experiment with different drawing methods and media in order to reproduce value gradations that are present in basic geometric forms.	Extend this study to other basic geometric forms: spheres, cylinders, cones; experiment with different methods and media for obtaining values.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Observe a still life composition made up of a group of simple-shaped objects, and draw it by shading, without using contour lines to define edges of objects or surfaces.	Value changes alone, without the use of line, can be used to differentiate objects in drawings. The appearance of the total composition as well as of the individual objects requires consideration.
Demonstrate the ability to see and record the weight of a figure by composing a modelled drawing (mass drawing).	View and discuss the bulk, weight, or mass of a figure, comparing, for example, the weight of an ankle to that of a thigh.	
	Draw a figure as though adding clay to an armature--the more bulk, the more medium (or pressure) should be applied; use loose, circular motions, working from the core (or inside) of the figure out, concentrating on weight not likeness.	Value may be employed to create the illusion of weight on a two-dimensional surface. Artists: Raphael, Da Vinci, Alex Colville (C), Maurits Escher, Caroline Dukes (M) Nicolaides, The Natural Way to Draw, pp. 32-39.
Continue to observe the solidarity of a subject and its weight or massiveness, and to record these features in drawing.	Examine completed drawings and interpret the weights displayed by subjects therein. Practice mass drawings of figures and solid objects.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	ILLUSION OF SPACE	
The student shall:	Have the student:	
Develop an understanding of the different systems of spatial presentation used in various cultures throughout history.	Examine examples of Egyptian, European, Medieval, Japanese and Renaissance pictorial representation, and discuss the ways in which space has been used in different historical periods and cultures.	Size and placement were used in Western European Renaissance art to represent the world objectively and realistically. In other cultures--the ancient Egyptian and the classical Japanese, for example--they were used to represent the world symbolically, the size and placement of objects in art reflecting the social or religious significance accorded them by the culture. Gombrich, The Story of Art. Medieval European paintings, Japanese paintings and woodcuts
Refine the ability to see spatial relationships and to record these using spatial relationship indicators. Observe the simple construction of lines of perspective, and demonstrate an understanding of these lines.	Practice drawings of grouped objects, using the indicators of spatial relationships that were introduced in Grade 7. Using a photograph of an interior, observe that lines may be extended along the edges of parallel surfaces to meet at a vanishing point; view other examples of this phenomenon in photography of buildings such as school hallways, etc.	Any principles can be introduced--unity, focal point, etc.--that are relevant to showing spatial relationships within a composition.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Exhibit an understanding of the formula for single-point perspective.	Discuss these concepts: picture plane, vanishing point, horizon line and eye level. Construct lines of perspective from a vanishing point and draw similar objects within the limits of these lines to create the illusion of distance, meeting the requirements of perspective given in Grade 7. Practice the construction of side views of volumes, such as the side of a building, using two parallel lines, a vanishing point, lines of perspective, and the eye-level line.	Line may be used to create the illusion of space on a two-dimensional surface. Fearing, The Creative Eye, p. 39. Film "Putting It Into Perspective," Department of Education. Reinhold Visuals S. Brody, "Sky Thrust," Line No. 8. Indian Kulu School, "Laila Visiting Her Lover, Majnun, in the Desert," Color No. 21. M. Kaish, "View from the Studio," Color No. 21. Louis and Janis Delsarte, "Staircase at the Electric Circus," Color No. 10.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
The student shall: Become conscious of the importance of negative areas in the design of any composition.	COMPOSITION Have the student: Draw a still life so that objects appear as simple silhouettes that touch the edges of the page in several places; notice that the negative spaces now have shape; treat these spaces as shapes to decorate by textured effects. Make a second drawing of the same still life, this time imagining that the frame has swung to the left or right, or up or down, so that objects touch the edge of the page in different places than before; note that the shapes of the negative spaces will vary from the first drawing; use decorative texture in both negative spaces and positive shapes, interspacing this with some solid areas to prevent "busy-ness."	The background areas of drawings or paintings should not be taken for granted, but should be treated as important parts of the total composition. Lauer, Design Basics, p. 192.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	LINE: CONTOUR	
The student shall:	Have the student:	
Observe that variations in the weight of a line can create the illusion of spatial depth and demonstrate an understanding of these line variations.	Examine landscape drawings by European and Far Eastern masters; discuss the illusion of spatial depth created by differences in the weight of the line (value and thickness), noting that the heavier the line, the more frontal it appears, and the lighter, the more distant it seems. Practice drawing lines to achieve the effect of spatial depth by varying their thickness and by juxtaposing lines of varying thicknesses.	Lines on a two-dimensional surface will appear to recede or advance in space as they vary in thickness, creating in the process the illusion of depth in space. Reinhold Visuals J. Albers, "Reverse and Observe," Perception No. 20. Lauer, Design Basics, p. 101.
Create contour drawings that use lines of varied thicknesses to define the forms of objects and the spatial relationships between them.	Execute contour drawings which include more than one object, as in a still life, varying the thickness of lines used so that one object appears to be behind another.	
Demonstrate the ability to see and "feel" the volume of an object and to record its form by the use of cross-contour drawing.	Make a drawing of an object by drawing rows of horizontal contours, co-ordinating both pencil and eyes to move together across the form from one side to the other. (The resulting form should look as though it is wrapped in bandages, like a mummy.)	As in other contour drawings, cross-contour drawing should rely on the sense of touch, as though there is physical contact between the pencil and the object being drawn.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Observe how the medium determines, in part, the quality of line in the works of professional artists and experiment by drawing lines in various media.	Examine a variety of artists' drawings, and discuss their media; notice the kind of line each medium produces and the relationship between the medium and the subject drawn. Draw lines with different media (ink, pencil, charcoal, conté, felt pen, etc.), using each medium in a variety of ways (pressing hard, touching lightly, scribbling, etc.). Students should be given the opportunity to compare and discuss these experiments with line.	The quality of a line may be determined by the medium used to draw it. Nicolaides, The Natural Way to Draw, pp. 20-22. Artist: Henry Moore (drawings) Lauer, Design Basics, pp. 160-162.
Demonstrate the ability to use in a contour drawing a medium which produces a quality of line suitable to the feelings being expressed.	Make several contour drawings using different subjects; choose a medium to emphasize a given theme relevant to the subject. (For example, charcoal could be selected to express the softness and smoothness of satin drapery, while pen and ink could be chosen to evoke the crispness of a crumpled paper bag.)	The expressiveness of a line is determined by the medium used to produce it and the manner in which that medium is used in a drawing.
	LINE: GESTURE	
The student shall: Improve the ability to see and record gesture and to feel empathy for the gesture of a figure.	Have the student: Practice drawing gestures so that the complete action of a figure may be determined by reading the drawing. Make a gesture study composed of several figures in action, such as can be found in a band, a gymnasium, a circus, etc.	See Grades 7 and 8 resources.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Observe visual continuity in a composition and demonstrate an understanding of this continuity.	Observe completed gesture drawings that record pronounced movements and discuss the direction or thrust of the lines defining these movements. Make gesture drawings of figures that express vigorous action. Examine paintings and/or drawings whose subjects are groups of figures engaged in activity; note that the viewer's eye is led through the picture by the linear elements contained in the gestures of figures and objects. Execute compositions in gesture that provide a determined path for the viewer's eye to follow.	Line may be used to define the direction of movement in a drawing or painting. Line may be used to create unity in a composition by visual continuity. Lauer, Design Basics, p. 10 and p. 154. Artists: Pieter Bruegel, William Kurelek (C), Cornelius Krieghoff (C)
	MODELLING	
The student shall:	Have the student:	
Recognize that light is reflected in different ways from curved and flat surfaces.	Examine differently shaped three-dimensional objects such as an apple, a box, and a vase, and compare the ways in which light is reflected from their surfaces. Examine the way in which light, falling on different objects, affects their appearance. It may be direct or dispersed, creating, respectively, strong values or faint ones.	Different light values are reflected by the surfaces of three-dimensional forms. Artists: Ronald Bloore (C), Arthur McKay (C), Kasmir Malevich (works with a wide range of differences within areas of white), Ad Reinhard (works with value ranges within areas of black), John T. Biggers ("Sleeping Boy," 1950)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Demonstrate the ability to create the illusion of volume in a composition by the discriminate use of shading.	Draw a still life from a display composed of objects having curved and flat surfaces that reflect light from a single common source (for ease of drawing, the objects should be of approximately the same colour and value).	Value can be used to create the illusion of volume on a two-dimensional surface. The illusion of a solid form can be created either through contrast or through gradation.
Demonstrate the ability to use shading to create atmosphere.	Read Chapter 1 in The Creative Eye, Volume 2, "Aesthetic Response to Moods of Nature." Draw an imagined scene with a distinct source of light--perhaps a bonfire in a field or a streetlight illuminating a night scene. The composition should indicate the light source and show correctly modelled volumes.	Value may be employed to create atmosphere and unity in a composition. Forms which contrast light and dark appear firmly defined and make an impact of surprise or shock on the viewer. Light used to create an area of high contrast can establish the focal point of a composition. Fearing, The Creative Eye, Volume II. Artist: Rembrandt

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	ILLUSION OF SPACE	
The student shall:	Have the student:	
Observe two-point perspective and demonstrate an understanding of it.	View examples of cubes at eye-level and form a corner angle, noting that there are two sets of parallel lines that extend to two vanishing points.	Two-point perspective is a way of drawing objects in space so that they appear correct according to depth perception. Fearing, The Creative Eye, Volume I, p. 39. Artists: Paulo Ucello, William Hogarth, Salvador Dali, Edgar Degas, Henri de Toulouse-Lautrec Also see comic books for dramatic effects achieved by shortening, etc.
Display competence in the ability to draw whole compositions using perspective formulas.	Draw an image such as a building using two-point perspective.	Unity in a composition may be gained by the use of perspective formulas.
Use perspective formulas to create dramatic effects in a composition.	Use one- or two-point perspective to draw a composition, rendering, for example, interior or exterior views of buildings.	Artists: Victor Vasarely, Charles Sheeler
	Draw unusual views of objects or figures such as "bird's eye" or "worm's eye" views of buildings, foreshortened figures and so on.	Dramatic effects may be realized by the use of perspective formulas.

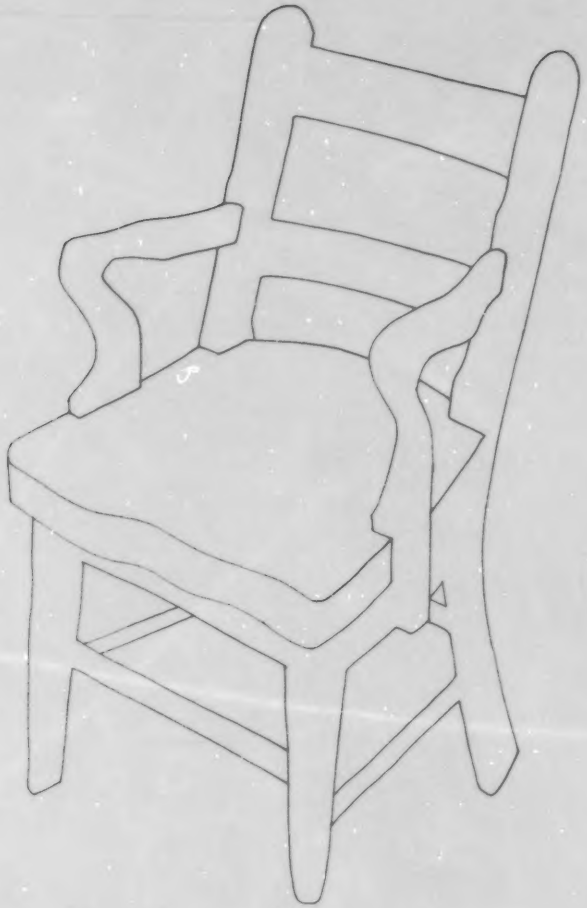
OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		Reinhold Visual: Vithoorn, Netherlands, "IBM Laboratory," Mass No. 13. J. Crum, "Job Lot Trading Company Mural," Perception No. 1. Lauer, Design Basics, p. 108.
	COMPOSITION	
The student shall:	Have the student:	
Become aware that contemporary art often shows no concern with figure-ground distinctions.	Study the work of the Cubists, Abstract Expressionists, and Color Field artists; discuss the interchange of positive-negative elements in their works as well as the emphasis they give to the picture plane.	When the concept of figure-ground disappears, the essential two-dimensionality of the surface of the drawing (or painting) becomes clear and important.
Develop skills in composing drawings that treat the space of the page as a two-dimensional surface and that do not rely on the traditional concept of object against background for interest.	Make drawings using line to divide up the picture plane into non-objective shapes; treat each shape as a two-dimensional decorative element by using textural techniques (lines, dots, shading, etc.). Make a "negative-space" drawing of plants or trees (see "Suggested Activities," Composition, Grade 7). Treat both negative and positive shapes as if they have volumes by modelling them with gradations of value; vary light and dark values in such a way as to maintain clarity and interest.	Lauer, Design Basics, p. 195. Artists: Georges Braque, Pablo Picasso, Jackson Pollock, Mark Rothko, Ellsworth Kelly, Jean-Paul Riopelle (C), Kenneth Lochhead (C), Paul-Emile Borduas (C) Bro, Drawing: A Studio Guide, pp. 59-64. Simmons and Winer, The Creative Process, p. 40.

MATERIALS

Paper, assorted
Charcoal
Pencils
Nib pens
Ink

Brushes
Crayons
Pastels (oil and chalk)
Felt pens
Coloured pencils

CONTOUR AND GESTURE DRAWINGS



CONTOUR

GESTURE

GLOSSARY OF TERMS

Blind Contour: Contour drawing executed without looking at the drawing surface.

Contrast: Comparative difference between values.

Contour: A line defining the outside edge of a shape; drawing executed using such lines.

Cross-Contour: Contour drawing across the surface of the figure to define form.

Cross-Hatching: Use of hatched lines crossing each other to vary tonal quality.

Double-Point Perspective: Perspective formula using two vanishing points to which all parallel lines extend.

Figure: Human model (i.e., a student volunteer).

Foreshortening: Exaggerated view of a model gained by use of perspective (e.g., apparent distortion of figure by enlarging extremities closest to the observer).

Form: A three-dimensional shape.

Gesture: Drawing in response to, and defining action or movement (gesture) of, a model.

Hatching: Use of even parallel lines drawn in such a way that the closer the lines the darker the value achieved.

Mass Drawing: Modelled drawing to display the weight of a figure.

Modelling: Shading to create the illusion of three-dimensional shapes on a two-dimensional surface.

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Negative Space: Area of a composition not occupied by the "subject."

Perspective: Formulas that create the illusion of three-dimensional space on a two-dimensional surface.

Positive Shape: Subject area of a composition.

Plane: A two-dimensional surface.

Secondary Contour: Lines defining the relief structure of forms existing within the confines of the primary contour.

Shading: A creation of tonal variations on the drawing surface by means of hatching, cross-hatching, stippling or by varying pressure on the drawing medium.

Single-Point Perspective: Perspective formula using a single vanishing point to which all parallel lines extend.

Stippling: Use of dots of even pressure applied to the drawing surface in such a way that the closer together the dots, the darker the value achieved.

Still Life: An arrangement of inanimate objects used as a source for drawings, paintings, etc.

Value: Degree of darkness or lightness.

Vanishing Point: Point at which all parallel lines seem to converge (usually located at eye-level).

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HISTORICAL CHART

Prehistoric (40,000 - 5000 B. C.)

- Engraved stones, cave paintings, etc. Caves of Lascaux, France; Altamira, Spain, 25,000 B. C.
- Use of contour to render shapes

Egyptian (4000 B. C.)

- Tomb Painting
- Iconographic imagery

Greek (750 B. C.) (Classical - 470 B. C.)

- Vase Painting, Wall Paintings
- Use of foreshortening, but not mathematical perspective

Medieval/Byzantine (300)

- Hierarchical ordering of pictures takes precedence over perspective

Late Gothic (1300)

- Revival of interest in perspective to achieve "Realism"
- Giotto Di Bondone (1266-1337) Italy

Early Renaissance (1400)

- Discovery of mathematical perspective, attributed to Filipo Bruneleschi (1377-1446), Paulo Uccello (1397-1475), Masaccio (1401-1428), Leonardo da Vinci (1452-1519) Italy; Jan Van Eyck (1390-1441) Netherlands (Belgium); Albrecht Durer (1471-1528) Germany

High Renaissance (1500)

- Michelangelo Buonarotti (1475-1564) Italy; Raphael Santi (1483-1520) Italy; Titian (1485-1576) Italy

Baroque (1600)

- Peter Paul Rubens (1577-1640) Flanders; Anthony Van Dyck (1599-1661) Flanders; Rembrandt Van Rijn (1606-1669) Holland; William Hogarth (1697-1764) England

Rococco and Neo-Classicism (1700 - 1800)

- Francisco Goya (1746-1818) Spain; Jacques Louis David (1748-1825) France; Jean-Auguste Dominique Ingres (1780-1867) France

Romanticism (1800 - 1830)

- Eugene Delacroix (1798-1863) France; Honore Daumier (1808-1879) France

Impressionism (1870)

- Edouard Manet (1832-1883) France; Edgar Degas (1834-1917) France; Auguste Renoir (1841-1919) France; Paul Cezanne (1839-1906) France
- Japanese prints popular in France, influential in shaping forms from late nineteenth century onward
- Henri de Toulouse-Lautrec (1865-1901) France; Georges Seurat (1859-1891) France; Vincent Van Gogh (1853-1890) Holland

Twentieth Century (1900)

- Henri Matisse (1869-1954) France; George Grosz (1883-1959) Germany; Pablo Picasso (1882-1976) Spain; Egon Schiele (1890-1918) Austria; Salvador Dali (b.1904) Spain; David Hockney, England; M. C. Escher, United States

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painting

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PAINTING

"Most people have looked at paintings but not everyone who has looked at a painting has seen it. To have seen a painting means to have grasped and appreciated all the diverse qualities, aesthetic and technical."[1]

Among the visual arts, painting has traditionally received the most attention. Throughout history, from primitive times to the present, the signature of an age has frequently been identified through painting.

The mechanics of painting are multi-faceted and therefore subject to diverse interpretations and sometimes misunderstandings. Predominantly, painting involves the internal and the external; that is, internal emotions, feelings and personal intent are given external representation through technical manipulation of colour, volume, balance and other design elements. This unit aims at developing the skills of junior high students in both of these areas. Students should acquire technical proficiency in various modes of painting, learning to transform personal totems and reflections into visual images.

This unit progresses from exploratory stages at the grade 7 level--wherein tools, materials, and preliminary exercises related to hue are introduced--to more advanced stages in the following grades. Grade 8 deals with value-related concepts, and grade 9 with the interaction of colours, colour symbolism, and specific techniques and media.

The historical outline, identifying major movements and painters, can assist teachers in making relevant connections to visuals or other auxiliary materials throughout the unit. Taught ideally, this unit balances studio experience with opportunities to develop aesthetic appreciation of paintings, both historical and contemporary.

The recommended teacher resource for this unit is Virginia G. Timmons' Painting: Ideas, Materials, Processes (Worcester, Mass.: Davis Publications, 1978).

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[1] N. Hulton, First Steps in Art Appreciation (London: Chiswick Press, 1968), p. 9.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	EXPLORATION	
The student shall:	Have the student:	
Become familiar with the variety of effects that can be achieved through the use of different types of brush strokes and painting media.	Explore the variations that occur when different amounts of water-soluble paint are on the brush.	The application of brush to paper determines the character of the mark. Brush marks may be continuous or irregular, blurred and variable in value, width or texture.
	Explore the types of marks achieved when direct pressure is put on the brush as it is held vertically, horizontally, or rolled between the fingers.	
	Explore the results obtained when brush strokes are overlapped.	Gerring and Patterson, Exploring with Paint.
	Explore the gradations in value achieved when water-soluble paint on a brush is repeatedly diluted with increasing amounts of water.	Sorgman, Brush and Palette: Painting Techniques for Young People.
	Explore textures created by dotting, spattering, swirling, or wiping brush strokes.	Textures created by a brush are different from those achieved by pencil or pen. Brush strokes rely heavily on the textural qualities of the painting surface.
	Explore effects achieved by applying wet paint on a wetted painting surface.	Tritten, Teaching Colour and Form in Secondary School.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	INTRODUCTION TO COLOUR-MIXING	
The student shall:	Have the student:	
Develop some understanding of basic colour mixing, and acquire commensurate skills.	Distribute equal amounts of the primary colours (red, yellow, blue) onto a surface that can be used as a palette (styrofoam tray, aluminum plate, etc.); mix successive pairs of the primary colours together. The resulting mixed hues are called secondary colours; red and yellow = orange; yellow and blue = green; blue and red = violet. Mix each primary colour with the secondary colour that is a combination of the other two primaries; e.g., mix red and green; yellow and violet; blue and orange. These "opposite" colours are called complementary colours (green is the complement of red and so on).	Red, yellow and blue are referred to as primary colours because they are not created by any combination of colours. Lauer, Design Basics, pp. 164-166. Hagen, Colour: A Guide for Every Painter. Sorgman, Brush and Palette: Painting Techniques for Young Adults. When the three primary colours or two complementary colours (really the same thing) are mixed together, the result will be a dark, neutral hue (black if colours are pure).
Apply colour mixing skills in the painting of a composition.	Paint a composition using two complementary colours only; use both pure unmixed colours and those that are mixed together in varying quantities to obtain differing intensities; ignore local colour (actual colour of object), and use any of the following as subject matter: - a grouping of piled-up chairs - a corner of the room	Mixing colour with its complement reduces its intensity. Shape can be defined by colour change. When composition is taught, any of the principles can be emphasized; e.g., focal point, balance. Fearing, The Creative Eye, Vol. 1, p. 10.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	- a grouping of potted plants - a collection of bottles - a group of pots and pans	Itten, The Art of Colour. Lauer, Design Basics, pp. 214-215. Artists: Joseph Albers, Johannes Itten, Piet Mondrian
	VALUE	
The student shall:	Have the student:	
Become familiar with the concept of "value" and its relationship to painting.	Discuss the concept of value and its relationship to colour; compare, where possible, two reproductions of the same painting, one in black and white, the other in colour; note the value equivalents of each colour.	Value is a property of colour which indicates its lightness or darkness. Some colours (hues) are intrinsically lighter or higher in value than others; e.g., yellow compared to blue.
Develop skills in mixing colours to obtain determined values.	Mix white paint together with the dark neutral hue obtained by intermixing the three primaries, in order to make a value scale as follows: Rule off a row of nine equal sections on the painting surface. Paint the first section with white paint, the last section with the dark neutral colour. Then mix a very small amount of dark pigment to the white to obtain value #2. Place this value adjacent to the white. Next, reverse the process and mix a value #8. Place this adjacent to the black. Alternate this process until you	Salemme, Colour Exercises for the Painter. Tritten, Teaching Colour and Form in Secondary School. Lauer, Design Basics, p. 218.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	reach the half-tone #5. A value scale consisting of nine gradations is the result. (Other value scales may be made by mixing white into a colour--greater range will be obtained using a low value colour such as blue--or by mixing black into a colour--preferably a high value colour such as yellow.)	White can be added to any colour to heighten its value. Black can be added to any colour to lower its value.
Apply experience and skills gained from colour mixing exercises to painting composition.	Create a composition using light and dark values of one colour to make a monochromatic colour scheme (add black and white). The composition could be an abstraction from a black and white magazine photo. The student could invert the photo, look for related shapes in different values, and then transfer the values and shapes into a composition using only one colour plus black and white.	Harmony can be achieved by the use of a monochromatic colour scheme. Monochromatic harmony is a colour-scheme executed in the tints and shades of one colour. Shape can be defined by colour change. Any of the principles can be emphasized in the teaching of composition, e.g., balance. Artist: Toni Onley (C)
	COLOUR WHEEL	
The student shall:	Have the student:	
Understand how secondary and tertiary colours are obtained by mixing and how and why colour is organized as it is on the colour wheel.	Make a colour wheel as follows: Use the three primary colours to make colour swatches and then mix pairs of	Through the inter-mixing of two primary colours, secondary colours (hues) are created.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	primaries together to obtain the secondary colours. Into each secondary colour mix, in turn, extra quantities of the primary colours composing it; e.g., mix green with blue. The resulting hues are called tertiary colours. These colour swatches can be cut out and glued in a circle in the order of their relationship to one another.	Through the inter-mixing of secondary colours with adjacent primary colours, tertiary colours can be created. The placement of a hue on the colour wheel is directly influenced by adjacent hues. All hues that exist on the colour wheel are derived from the primary colours--red, yellow, and blue. Hagen, Colour: A Guide for Every Painter. Itten, The Art of Colour. Salemme, Colour Exercises for the Painter. Lauer, Design Basics, p. 216.
	WARM/COOL COLOURS	
The student shall: Become aware of the emotive potential of colour.	Have the student: Discuss the associative qualities of colour--those such as calmness, excitement, coolness, and warmth. Formulate a distinction between colours that suggest "coolness" and those that suggest "warmth."	Colours (hues) create associative responses; e.g., red, orange, and yellow have "firey" properties, and thus suggest warmth. Blue and green suggest coolness.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Complete a painting that is painted entirely in either warm or cool hues. Some possible themes are: travel posters, landscapes, seasons.	Lauer, Design Basics, p. 231. Artists: L. Lemoine Fitzgerald (M), Takao Tanaise (C)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	ANALOGOUS COLOURS	
The student shall:	Have the student:	
Develop an awareness of harmonic relationships created by the use of analogous colours.	Discuss colour schemes based on analogous colours in visuals.	Analogous colours are colours that are adjacent to or adjoining the primary colours on the colour wheel. These colours are related by having the same "family source" or base; e.g., yellow-orange, yellow, and yellow-green are analogous colours.
	Collect materials (fabrics, papers, photographs, etc.) comprised of analogous colours to use in a collage.	d'Arbeloff and Yate, Creating in Collage.
	Plan a design using simple overlapping shapes of varying sizes to create interest; cut the shapes from collected collage materials and paste onto a background painted with one of the colours in the selected colour family.	Analogous colours may be used together to create a colour harmony or scheme. Bethers, Composition in Pictures.
	Set up a still life of simple objects; make two primary contour line drawings of the still life (see Drawing, Grade 7 - Line); paint the resulting shapes using two sets of analogous colours, one set per composition; discuss and compare the moods created by the respective colour schemes.	Lauer, Design Basics, p. 202 and p. 224. Artists: Pablo Picasso, Georges Braque, Kazuo Nakamura (C)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	VALUE	
The student shall: Refine skills in mixing colours to achieve desired value.	Have the student: Create a monochromatic colour value scale using one colour and the variety of tints and shades that can be obtained by adding varying amounts of black or white pigment.	Value is the darkness or lightness of a colour. Tints are the lighter values of a colour obtained through the addition of white pigment. Shades are the darker values of a colour obtained through the addition of black pigment. Monochromatic harmony is a colour scheme executed in the tints and shades of one colour. Salemme, Colour Exercises for the Painter. Tritten, Teaching Colour and Form in Secondary School. Lauer, Design Basics, p. 218.
	Select a black and white photograph. Using it as the subject for a monochromatic composition, reproduce its values in corresponding tints and shades of a single colour.	
	OPTICAL MIXING: POINTILLISM	
The student shall: Acquire an understanding of the phenomenon of optical colour mixing.	Have the student: Review the components of the colour wheel and note how complementary colours are created both by blending primary colours together, and by blending primary colours with secondary colours.	Optical colour mixing occurs when the viewer's eye blends or combines separate colour data in a perception of a single colour; e.g., a field of intermixed red and

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Discuss the phenomenon of optical mixing and the significance of the proximity of the dots to one another in creating value, contour, and/or depth.	yellow dots can be visually perceived as an orange hue.
	View artworks created by artists who worked in the pointillist style and discuss the artists' interests.	The Pointillists referred to their style as the Art of Divisionism because they divided complementary colours into the two primary components; i.e., instead of manually mixing a green hue, the Pointillists applied blue and yellow paint intermixed in the form of tiny dots. When viewed at a distance the yellow and blue dots appeared to blend together to create a green hue. Artists: Georges Seurat, Roy Lichtenstein, Ivan Eyre (M), Ted Godwin (C)
	Discuss the effect of the distance between the viewer and the subject on the visual experience.	The phenomenon of optical mixing is dependent upon the distance the viewer is from the subject; the closer the viewer is to the subject; the less likely it is that optical mixing will occur.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	View examples of newspaper photos and/or comic book visuals that are comprised of multiple rows of dots. Perhaps an opaque projector can be used to magnify these unique visual images.	The phenomenon of optical mixing is used in printing processes. Itten, The Art of Colour. Salemme, Colour Exercises for the Painter. Lauer, Design Basics, p. 228.
Apply the principles of optical colour mixing to a painted composition.	Create a pointillist painting by starting with a pencil sketch and, using small dots, painting large areas first. A clean brush is required for each colour. Red and yellow dots can be combined to create an orange hue, red and blue for purple, etc. Adding tiny white dots to an area or leaving spaces between dots lightens a colour; adding black dots or placing dots closer together darkens a colour. After completing large areas, fill in smaller ones.	
	ADVANCING AND RECEDING COLOURS	
The student shall: Become aware of the potential that advancing and receding colours have for suggesting spatial depth, and develop skills in mixing colours to achieve recession or advancement.	Have the student: Review warm and cool colours and tints and shades.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Illustrate through examples (visuals or a demonstration) how intense warm colours appear to advance while cool colours, shades, and tints appear to recede.	Warm colours advance while cool colours recede.
	View examples of paintings that give the illusion of spatial depth (especially still life), and discuss the way in which high values are used in the foreground and low values in the background.	Hagen, Colour: A Guide for Every Painter. Salemme, Colour Exercises for the Painter. Lauer, Design Basics, p. 101 and p. 223.
	Review the colour wheel, illustrating the nature of complementary colours on it; compare pure pigment with the same pigment that has been "grayed-down" by the addition of its complementary colour.	Through the addition of its complement, a colour can be "grayed-down" or made less intense. Colours tend to recede as their intensity decreases.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	INTERACTION OF COLOURS	
The student shall:	Have the student:	
Become aware of the optical phenomenon of apparent colour change that is effected through adjacent colours.	Study "Op" art paintings of the '60s, and discuss how the use of colour in these creates illusions.	Adjacent colours may effect the following illusions: - some visual size differentiation although actual physical size is the same; - some intensity change within a colour when transposed onto different background hues; - some acquisition of the complementary background colour, when a neutral colour is transposed on a background colour.
	Experiment with colour interaction by painting sheets of paper with the solid colours called for in the following exercise, cutting some up into squares which can be pasted onto larger sheets to make these colour comparisons.	
	A white square on a black background. A black square on a white background.	The white square on the black background appears larger than the black square on the white background even though the two squares are of the same size.
	A red square on a black background. A red square on a white background.	The red square on the white background appears to have a relatively dark hue whereas the same red square on the black background appears to be very intense and have a light value.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	A small gray square on a red background. A small gray square on a green background. A small gray square on a violet background.	The gray square on the red background appears greenish. The gray square on the green background appears reddish. The gray square on the violet background appears yellowish. NOTE: The gray square is actually generating the complementary colour of each background colour.
	Experiment with other colours using these related exercises and indicate in brief note form the results.	Bethers, Composition in Pictures. Itten, The Art of Colour. Lauer, Design Basics, p. 214 and p. 220. Fearing, The Creative Eye, Vol. I, p. 12. Artists: Victor Vasarely, Joseph Albers, Larry Poons, Bridget Riley
Develop skill in using this optical phenomenon--apparent colour change effected by adjacent colours--to create deliberate effects in a painting.	Use the information gained from research into "Op" art and from the preceding exercises to experiment with the production of an "Op" art painting; use basic geometric shapes (squares, circles, stripes, etc.) in a repetitive pattern to create a game-like effect for the viewer, in terms of making apparent colour changes where there are none, or vice versa.	"Op" artists of the sixties experimented with optic effects of colour and light as well as other visual phenonema. "Op" art may use the repetition of one or more of the elements; e.g., line, shape, colour.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	EMOTIONAL AND SYMBOLIC ASPECTS OF COLOUR	
The student shall: Become aware that colour can evoke an emotional response and can also represent abstract ideas or concepts.	Have the student: Review information on the differentiation between warm and cool colours (see Grade 7 section). This differentiation is primarily achieved through an associative/emotional response to colour. Identify the familiar symbolic and/or emotional colour references made by items such as those that follow: - fashions (bridal, babywear, military) - festive occasions and holidays (Christmas, Halloween, etc.) - traffic/pedestrian signs - political/social symbolic colour references (flags, logos, commercial signs, etc.) - emotional states (greed, envy, anger, fear, cowardice, etc.) Compare specific applications of colour symbolism in North American traditions with corresponding applications in other cultures.	While all colours seem to arouse some sort of emotional response, colours that are used symbolically often seem to have been selected arbitrarily, their rationale lost in the mist of time. Symbolic colours are also culture-related. For example, the colour of mourning varies as follows:

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		- North America - black - India - white - Turkey - violet - Ethiopia - brown - Burma - yellow The colour of royalty also varies: - North America, Western Europe - purple - China - yellow - Ancient Rome - red Symbolic colour references are often embodied in the history, sociology, and politics of a culture. Salemme, Colour Exercises for the Painter. Lauer, Design Basics, pp. 231 ff. Artists: Georgia O'Keefe, Wassily Kandinsky, Vincent van Gogh, Joyce Wieland (C)
	Create a painting that communicates an idea or message through the use of symbolic colour reference, using one of the following forms: - a graphic poster - a playbill advertising a play or movie	When composition is taught, any of the principles can be emphasized; e.g., focal point, balance.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	- an illustration accompanying a piece of prose or poetry	

MEDIA

At the junior high level, it is both practical and necessary to limit the number of painting media. Although oil painting is time-honoured and popular, it will not be dealt with here. Reference materials will provide additional information.

TEMPERA PAINTING

Tempera is water soluble and opaque. If thinned down, it will take on a transparent quality although not as successfully as transparent watercolour. It is possible to paint over areas of tempera paint. It can be lightened with the addition of white or darkened with black. Suitable painting surfaces for tempera are paper or illustration board (a good quality paper mounted on cardboard). A tempera painting can be finished with a commercial spray fixative or spray varnish to protect it.

GOUACHE

Egg tempera, poster colours, and casein are sometimes referred to as gouaches. However, a true gouache is a watercolour paint that is made opaque by the addition of finely-powdered clay. It is manufactured by a number of companies and can be bought in tubes. Gouache dries quickly and can be freely overpainted, underpainted, glazed, or built up into an impasto. Gouache dries lighter when dry and has a dull, matte surface.

TRANSPARENT WATERCOLOUR

Watercolours can be purchased in cakes or tubes and are usually sold as students' or artists' colours. The artists' colours are more expensive but have greater fluidity and richer colour. When using transparent watercolours, the whites are often reserved; that is, instead of painting on white areas, the white of the page is used. Transparent watercolours can also be incised, blotted or painted over. Watercolour lends itself to a variety of techniques (wet-on-wet, dry brush, etc.). But since its "beauty" lies most often in spontaneity, it should not be "overworked."

Different brushes can be used to apply watercolours: round and flat sable and squirrel hair brushes, Oriental round and flat brushes, or synthetic bristle brushes. Special paper is required which is available in varying weights and textures. (Japanese rice paper can also be used.) The paper must be prepared before paint is applied to it. Usually it is soaked in water and then dried on a flat surface to which it is fastened with kraft or butcher tape. It must be handled with care to avoid finger painting.

ACRYLIC PAINT

Acrylic paints are made by combining pigment with plastic (acrylic or vinyl resins). Although they resemble oil-based paints in appearance, they are better for classroom purposes since water soluble.

(Unlike oils, they dry quickly, emit no fumes when mixed, and require no special cleaning agents.) However, they are virtually impossible to remove from clothing or brushes once dried to their plastic state. Acrylics are versatile in that they can be used to achieve transparent, opaque and impasto effects. Matte or gloss finishes can be obtained by adding appropriate commercial media. They do not yellow, fade, or crack.

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Acrylics are hard on natural fibre brushes, but these can be used; nylon acrylic brushes may be more economical in the long run. Palettes can be of paper, wood, glass or plastic. Suitable painting surfaces include gesso panels, masonite panels painted with white latex paint, or canvas prepared and stretched.

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SCUMBLING

Scumbling is also referred to as "dry brush," one of the tools for its execution being a brush with very little medium on it. It is possible to dry brush over already painted dry colour areas or to use this technique alone. It produces a very textural effect, and can be used effectively in landscape painting and animal portraiture.

IMPASTO

Impasto refers to the thick application of paint. Depending upon the medium (tempera, oils, acrylics), there are a number of ways to achieve an impasto surface. Tempera paint can be thickened and given an acrylic paint quality through the addition of commercial products such as P.V.A. medium (a polymer medium). Oil or acrylic paint employed in generous quantities can achieve an impasto surface, but this is more expensive than purchasing the commercial extenders that are available for both. Impasto produces a highly textured surface when a brush or palette knife is used. It can also be used in these ways: to adhere collage materials or other found objects into the surface; to score into the surface with utensils other than a brush or palette knife; to add coarse materials such as sand into the medium to achieve very pronounced textural effects.

GLAZING

Glazing is an old technique from Renaissance times for achieving translucent colour. Probably most suited to oil and acrylic paints, it involves superimposing a series of transparent layers of colour. Each layer of paint is applied after the preceding one drys; each colour must be thinned so that the preceding one shows through. Darker colours are usually superimposed over lighter colours.

CREATING LIGHT EFFECTS

Students may want to paint different aspects of reflected light; i.e., candlelight, sunrises/sunsets, shiny surfaces such as satin and chrome, atmospheric effects such as fog, smoke, or rain. The techniques for doing so are described below.

Candlelight, Sunrise/Sunset

The effect can be achieved by indicating the light source in a very light colour, and then gradually painting in darker gradations of the same colour family. Each gradation should be softened at the edges to blend into the colour before and after it. The background space can then be painted in a complementary colour to achieve maximum luminosity.

Lustrous Effects

This example will deal with achieving lustrous effects in red satin drapery. First, paint the folds of the drapery pure red, adding touches of black to depict shadow areas. Then, paint the surfaces closest to the light source in pink tones. Add a very thin line (almost pure white) to these surfaces to indicate the lustre. Finally, paint the background areas in a subdued grayed-down colour.

Atmospheric Effects

The scumbling technique is suitable for producing atmospheric effects. Prepare the colours by mixing them with a little black, white, and raw umber (oils and acrylics) to derive a series of dusky tones. Choose one of these tones and paint the entire painting surface with it. Tonal effects can be achieved by working white or other light values into the background colour. Indicate subjects (street, trees, figures, etc.) by outlining them in a dark colour on the still wet painting surface. Put in accents of colour for details and lighter values in the sides of objects that may be catching the light (i.e., streetlamps, windows, faces).

Resist Techniques

The resist technique relies on the principle that water paint slides off a surface coated with wax or any other resist medium. Resist media include: coloured crayons, liquid wax (available at ceramic supply stores), bondfast and other types of glue and various liquid cements. Water-soluble paints include tempera, watercolour, gouache, and acrylic. (Food colouring can be used as a substitute for paint.)

The resist media can be painted onto the surface, squeezed through an eyedropper or poured directly out of the container. The initial resist areas will play an important role in the finished work but crayon, wax, etc., may also be applied to dried areas of painted colour. The student may also scratch through the applied surface and add more colour. The painting surface lends itself to further experimentation; i.e., crumpling, creasing, adding other textures of resist materials.

GLOSSARY OF TERMS

Analogous Colours: Colours that are adjacent to or adjoining the primary colours on the colour wheel; colours of the same "family."

Casein: Paint made from dried milk curd; used as a binder since earliest times and used as an undercoat for paintings and murals because of its adhesive property.

Collage: A collection of objects that are arranged together and affixed to a surface.

Complementary Colour: Colours situated directly opposite one another on the colour wheel; e.g., red and green, yellow and violet, etc.

Composition: The arrangement of a drawing, painting, collage, etc., whereby the shapes and other components relate to one another in balance.

Cool Colours: Colours that suggest coolness rather than warmth; e.g., most blues, grays, and greens.

Drapery: Cloth or fabric, most often used in the arrangements of still life objects to provide a background.

Glaze: Any transparent coat of paint that is superimposed over a dry coat of paint so that the undercoat filters through.

Gouache: A water-soluble paint which is made opaque by the addition of finely powdered clay to the pigment.

Grayed-down: A muted variation of a pure colour achieved by the addition of a small amount of black pigment or the complement of the colour that is to be grayed-down.

Hue: Another term for the word "colour."

Impasto: A thick application of paint; most easily achieved with oil paints or acrylics.

Intensity: The strength of a colour.

Local Colour: The true or actual colour of an object as distinguished from the effect produced when influenced by light or adjacent objects.

Medium: The mode of expression employed by an artist (i.e., etching, painting, sculpture, etc.); the actual material used by an artist (i.e., oil paint, watercolour, etc.).

Monochrome: A painting completed in the tints and shades of one colour; opposite of polychrome.

Opaque: The quality of a colour or an object that makes it impervious to light, incapable of being seen through.

Palette: A tablet or any flat surface upon which to mix paint; may also refer to the colours that an artist uses.

Palette Knife:	A flat, thin metal knife with a handle used to apply oil or acrylic paints.
Pigment:	A powder form of colouring matter used in paints.
Polychrome:	Anything painted in several colours; the opposite of monochrome.
Primary Colours:	Red, yellow, and blue; from these three, all other colours can be made.
Scumbling:	Painting with very little paint on the brush, to produce a feathery, uneven texture.
Secondary Colours:	The three colours mixed from the primary colours: orange (red and yellow), green (yellow and blue), violet (blue and red).
Shade:	Darker variations of a hue obtained through the addition of various amounts of black pigment; can also refer to the illusion of roundness and depth of a form.
Still-Life:	An arrangement of inanimate objects used as a source for drawings, paintings, etc.

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Tempera:	A dry pigment mixed with the emulsion of egg yolk and water; a water-soluble paint that can be mixed with oil and used as an oil paint.
Tint:	A lighter variation of a hue obtained through the addition of varying amounts of white pigment.
Transparent:	The quality of allowing light to pass through to the extent that the viewer can see through the colour.
Translucent:	The quality of allowing light to pass through but not to the extent that the viewer can see through the colour.
Underpainting:	A coat of gesso or an undercoat of quick-drying paint that is applied to the ground layer of the painting surface.
Value:	Degree of darkness or lightness.
Warm Colours:	Colours that suggest heat and warmth; e.g., red, orange, yellow.
Watercolour:	Transparent paint made from a mixture of pigments and gum arabic.

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HISTORICAL CHART

(25,000 B. C.)

- Cave paintings in Lascaux, France, and Altamira, Spain, in the Pyrenees
- Earth oxides and charcoal mixed with animal fats used

Egyptian, Old Kingdom (4000 B. C.)

- Interiors of pyramids and rock temples painted
- Watercolour and tempera used, applied with thin reeds or brushes
- Naturalism not a concern
- Figures in profile

Cretan (Minoan) (3000 B. C. to 1100 B. C.)

- Prosperity of this civilization reflected in the art
- Painting similar in style to Egyptian except for the use of more subtle colour and the attempt to record more accurate observations
- Lavish art by 1400 B. C.
- Crete invaded by Hellenic tribes in 1100 B. C., Cretan splendour ended

Greek, Archaic Age (750 B. C.)

- Representational art

Greek, Classical Age (470 B. C.)

- Idealism exposed in art
- Southern traditions of emblematic presentation in painting left behind
- Watercolour and tempera improved upon
- Wax painting (encaustic) introduced
- Composition, the use of colour, and the study of anatomy a part of the craftman's training
- Experimentation in the use of the figure, in balance, in the suggestion of movement, and the placing of clothes and drapery to accentuate action

Greek, Hellenistic Period (338 B. C.)

- Deification of man expressed in the lives and art of this culture
- Period during which the Venus de Milo, the Apollo Belvedere and the Acropolis created
- Sculpture flourished over painting

Roman (146 B. C. to 30 B. C.)

- Roman conquest of the Middle East, Europe, and North Africa
- Many Roman artists descendents of captive Greeks taken in war
- Whereas the Greeks sought to portray the perfect man, the Romans sought first and foremost a realistic likeness
- Powerful impact of the arts recognized, put to use in sculpture, mosaic and fresco; accounts of Roman prowess in war and peace on the walls of buildings
- Optical embellishments sometimes painted; e.g., extra columns or architectural details to enhance the grandeur of the villas of rich citizens

Medieval Art, Early Christian Art (300)

- Tremendous period of church building
- Statues considered a sign of paganism
- Paintings, the popular mode, used to teach Church doctrines in a form easily understood

- Frescoes and tempera among the media used
- Mosaic work dominant in the early churches
- Stylization of Byzantine art reminiscent of Egyptian, but saints shown full face with great attention to detail
- Strict artistic codes laid down by the Church as to what particular paintings were to say or teach

Mohammedan or Islamic Art (550)

- Naturalistic rendering of people or animals forbidden under Islam
- Elaborate decorative design and repetitive geometric pattern characteristic
- Mohammedan conquests, especially in Spain; Christian images painted over in churches

Byzantine (800)

- Byzantine art continued to flourish in the Middle-East, Greece, Russia and parts of Italy

Northern Europe (30 B. C. to 1100 A. D.)

- Northern Europe repeatedly invaded by Teutonic tribes and Scandinavian Vikings
- Art of the invaders characteristically ornate in design and executed in wood and metallic media
- About 700 A. D., monks secretly producing elaborate illuminated manuscripts, often influenced by Viking motifs blended with Byzantine styles; usually religious, sometimes academic
- Art of painting largely connected with literature--its purpose to tell a story--though considerable advances made during this period

Gothic Art in Europe (1150)

- Characteristic style found in the enormous cathedrals built in France, Germany, and England

- Art aimed to transcend earthly realms, endeavoured to bring the eye of the viewer upward to the heavens; Gothic cathedrals a culmination of lofty verticals

Renaissance Art, Italy and Northern Europe (1300-1500)

- Considered a period of emancipation for painting
- Continued until the beginning of the 16th century
- Painting stood as an entity unto itself, no longer tied exclusively to religious or political demand
- Early Renaissance painters (1400 A. D.): Cimabue, Masaccio, Donatello, Francesca, Leonardo da Vinci
- High Renaissance painters (1500 A. D.): Michelangelo, Raphael, Titian, Tintoretto
- Western Renaissance painters (with some modification by vestiges of Medievalism) were the Van Eycks, Vander Weyden, Van de Goes

Baroque Art, Europe (1600)

- The age of Rubens, Rembrandt, Valequez
- Considered by some critics as a direct attack on the senses through colour, form, and light
- Considered the complete antithesis of "classical," to the point of being decadent
- Figures full of gesture and compositions asymmetrical or diagonal, illustrating infinite space
- Strong mystical components evident
- Landscape painters: Caravaggio, Poussin, Claude Lorrain, Ruysdael, Rubens
- Portraiture: Rembrandt, Hals, Velasquez, Rubens Van Dyke
- Still life: Zurbaran, De Heem, Heda
- Also the period of early Colonial art in America

Rococo Art, France and Other Countries (1700)

- A continuation of the Baroque period, but extremely ornate in style

- Sometimes referred to as the style of Louis XV (1723-1760)
- Limited mostly to the decoration of interiors

Neoclassicism (1800)

- Resurgence of classical art as a direct reaction against Baroque and Rococo
- Painting marked by precise contours, strong contrasts of colour and a combination of monumentality and cold academism
- Painters: David, Ingres, Canova, Gerard

Romanticism (1820)

- The first artists to reject any kind of dependence on patrons; rejection, as well, of the need for an audience
- Art premised on the notion that if an artist has something worthwhile to say, the public would become convinced of his or her viewpoint
- Expression based on personal inspirations, a study of past tradition, and upon all human experience
- Painters: Gericault, Delacroix, Goya, Turner

Realism and Naturalism (1850)

- A reaction against the exotic escapism and literary tendencies of Romantic art
- The world as it appeared to the average person portrayed
- Attempt to make a visual copy of nature, with the inclusion of minute details
- Painters: Daumier, Courbet, Manet, Homer, Eakins, Constable
- In North America, pioneer painters depicting scenes of daily life included Cornelius Krieghoof, Paul Kane, Peter Rindisbacher, Frederick A. Verner, Edward M. Richardson, among others

Impressionism (1870)

- The illusion of light and atmosphere a primary interest
- A new technical approach to painting contributed by the Impressionists
- Intensive study of the scientific theory of colour and the effect of light on the colour of objects
- The principle of juxtaposing complementary colours in large areas for greater brilliance discovered; shadows interpreted as composed of colours complementary to the hue of the object casting those shadows
- Landscape a favourite vehicle for colour studies
- Painters: Monet, Pissarro, Renoir, Degas, Sisley

Post-Impressionism (1880)

- Influenced by Impressionism, but distinct objectives:
  . a return to the structural organization of pictorial form
  . an emphasis on decorative organization for the sake of unity
  . an exaggeration of natural appearance for emotionally suggestive effects
- Painters: Cezanne, Seurat, Gauguin, van Gogh, Toulouse-Lautrec

Expressionism (1901)

- Most predominant in France and Germany
- Characteristically a style illustrating explosions of colour and emotion, bold styles of drawing including the graceful curves of Matisse and the vibrant slashes of Kokoschka
- Includes a group referred to as the "Fauves" (wild beasts), who attempted to work in a colourful, emotional, and intuitional style
- Many protested against the outrages of the time (political and social) through their work

- Painters: Matisse, Roualt, Derain, Vlaminck, Modigliani, Dufy, Utrillo, Nolde, Kirchner, Kokoschka, Beckmann, Grosz, Dix, Picasso
- Recent (1930): Weber, Shahn, Levine, Avery, Baskin, Orozco

Cubism and Futurism (1906)

- The beginning of abstraction, linking of universal forms of nature with geometric forms such as the cube, the cone, and the sphere
- Painters: Picasso, Braque, Leger, Gris

Non-Objective Art and Surrealist (1910)

- From 1910 to 1918, artists throughout Europe motivated to eliminate nature from art
- Non-objectivism explored in two main directions: the first, emotional and sensual; the second, the precision of geometric arrangement
- Non-Objective artists: Kandinsky, Albers, Moholy-Nagy, Gabo, Arp, Mondrian, Feininger, Stella, O'Keefe, Stuart Davis
- World War I years nurtured the growth of a style emphasizing the irrational side of human behaviour
- Dadaists and Surrealists endeavour to capture the realms of dreams and of the subconscious
- Artists portraying the "fantastic":
  . 1910 - DeChirico, Chagall, Klee, Rousseau
  . 1916 - DADA - Txara, Duchamp, Picabia, Ernst, Schwitter
  . 1924 - SURREALISM - Ernst, Tanguy, Dali, Magritte, Masson, Bacon
  . 1925 - SURREALIST ABSTRACTION - Picasso, Miro, Tamayo, Matta, Gorky, Rothko, Hofmann, de Kooning

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(1920s)

- Canada - formation of the Group of Seven - Harris, Jackson, Farley, MacDonald, Johnston, Carmichal, Lismer, Thomson - (a natural but stylized treatment of the Canadian landscape)
- Canada - Emily Carr, David Milne, William Wood - contemporaries of the Group of Seven (highly personal approaches to painting the land)

(1930s)

- U.S.A. - traditional realists: John Sloan, Grant Wood, Thomas Hart Benton, Andrew Wyeth, Edward Hopper
- Canada - Charles Comfort, Jean-Paul Lemieux, Carl F. Schaefer, Alex Musgrove, Thomas Fripp

Abstract Expressionism and Action Painting (1945)

- Characteristically a style illustrating an intensity of emotion derived from the spontaneous, uncalculated act of painting
- Painters: Pollock, Motherwell, Frankenthaler, Rothko, Brooks, de Kooning

Colourfield and Hard-Edge Painters (1950-1965)

- Colourfield and Hard Edge Painters: Newman, Morris Lewis, Kelly, Noland, Stella, Poons
- Mininmalists: Yves Klein, Olitsky, Reinhardt
- Canadian - Non-Objective: L.L. Fitzgerald, Bertram Brooker, Al Pellan, P. E. Broduas, J. P. Riopelle, H. Town, J. Shadbolt, G. Molinari

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Pop Art, Happenings (1955-1964)

- Includes subjects made popular by the media, advertising, everyday usage
- Happenings an aspect of Pop art incorporating an environment and people as active components
- Artists: Warhol, Lichtenstein, Dine, Indiana, Oldenburg, Segal, Grooms, Marisol, Rosenquist, Kitaj

New Realism or Super-Realism (1965 - to present)

- Meticulously rendered images of reality
- Popular imagery includes plate glass windows, automobiles, portraiture
- Artists: Pearlstein, Ramos, Katz, Thiebaud, Lindner, Groings, Close, Hanson, Estes, Alex Colville, Christopher Pratt

Op Art

- Op refers to "optical"
- Precise shapes and configurations that have a direct impact on the physiology and psychology of the viewer employed
- Artists: Vasarely, Anzskiewicz, Ortman, Agam, Riley Denny

Conceptual, Environment, Land Art or Earthworks

- Combines the extension of the artist's idea with the experience of it by the viewer or spectator
- The piece often of a fleeting nature, existing no longer than it is experienced or than it is acted upon by outside influences (natural or man-made)
- Artists: Lansman, Andre, Chrysto, Smithson, Serra, Lewitt, Heizer, Oldenburg, Oppenheim

Kinetic Art

- Incorporates "movement"
- Ignores the traditional limits between painting and sculpture and often incorporates both
- Includes diverse modes such as mobiles and mechanical or electronic mechanisms that emit sounds when an unsuspecting viewer comes near
- Artists: Tinguely, Lippold, Flabin, Chryssa

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printmaking

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PRINTMAKING

"Prints have changed the course of history. They have worked for peace or for war, for God and for the Devil. Tyrants and political bosses have feared their power. Prints have pleaded the cause of the Reformation against the Popes, of the republic against the monarchy. They have fought slavery and corruptions as they now fight war and pollution. The history of man's aspirations can be revealed by leafing through a great print collection."[1]

"The history of printmaking is the history of innovation in communication. Before the age of mass literacy, pictorial images played a particularly significant role in conveying ideas and traditions. Prints were relatively inexpensive and many people could afford them. Artists found, through the print, a means of increasing both their output and their audience. Because the printed picture was the potent mass communications tool of the times, there was a continuing need to reproduce images more accurately and efficiently. The demand spurred innovation in materials and techniques."[2]

In printmaking today, the original plate can be used to create a single image as a unique piece or to produce multiple copies. Careful planning within the confines of each medium used is mandatory since original plates, screens, etc., are means to the printed image and not final products themselves.

Through the study of printmaking students should gain both an understanding of the techniques involved in the making of the individual types of prints, and a sensitivity to the relationship of technique or medium to subject matter and expressive content.

As in other two-dimensional areas, elements of shape, line, texture, and colour, plus the principles of design--unity, balance, emphasis, etc.--should play an important role.

The recommended teacher resource for this unit is Saff's and Sacilotto's Printmaking: History and Process (New York: Holt, Rinehart and Winston, 1978).

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[1] Fritz Eichenberg, The Art of the Print (New York: Harry N. Abrams, 1976), p. 7.

[2] Thelma R. Newman, Innovative Printmaking (New York: Crown Publishers, 1977), p. 1.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	PLANOGRAPHY Monoprint	
The student shall:	Have the student:	
Observe the transfer of an image from an inked surface to a paper and demonstrate an understanding of this basic process.	View an example of a monoprint. The textured quality of this type of print can be achieved in no other way.	A monoprint results when a single print is made from an image. Harris, Form and Texture.
	Compare the original image with the image obtained from the transfer, considering why the image obtained from the transfer is the reverse.	In the printing process, the transferred image is visually perceived as a reversed image. Fearing, The Creative Eye.
Demonstrate skill in creating, inking, and pulling a monoprint.	Prepare designs for monoprinting, based on themes that could include faces, plant forms, still life, a crowd, street scene, machine parts, etc. Use one or a combination of the following methods: 1. Lift-drawing. Ink the surface of the plate evenly. Gently place a sheet of paper on the surface so that it does not pick up the ink. With a blunt instrument, draw the design on the paper surface, exerting enough pressure to pick up ink on the reverse side.	Monoprint combines line, shape, and texture. Eichenberg, The Art of the Print.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	2. Negative-line monoprint. Ink the surface of the plate evenly. Draw into the ink with a tool having a broad enough tip to leave a fairly pronounced line. Place the paper over the surface and gently rub. Pull the print which will show light lines against a dark surface (unless you are using coloured paper that is darker than the ink). 3. Positive monoprint. Draw with ink, using a brush, sponge, spatula, etc., directly on the surface of the plate with line and/or areas of colour. Press paper on the plate. Pull the print. 4. Negative/positive monoprint. Ink the entire surface of the plate. Place shapes cut from paper here and there on the inked surface according to a pre-arranged design. Place printing paper on the surface and rub. Pull the print. Those areas that were covered with cutout shapes will not be inked.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	RELIEF Collograph	
The student shall: Explore the visual and the compositional possibilities in the printing of found objects and demonstrate skill in creating a relief plate, inking the surface, and pulling a print.	Have the student: Collect various kinds of objects that might be used for their surface texture: buttons, string, lace, feathers, burlap, clock parts, seeds, etc.; combine these with cutout cardboard shapes that have been built up in layers and fused together to attain a thickness of approximately 6 mm (maximum thickness recommended for all objects); arrange the objects in a satisfactory design on cardboard backing, making full use of their texture; glue and, once dried, apply ink; place paper on inked surface, apply pressure, and pull print. Repeat the inking process, making several prints from the same plate. The plate and its objects will hold together through more prints if hardened with a coat of varnish or varathane. Compare the prints to one another, noting that no two are exactly alike.	The textural qualities, shapes, and sizes of natural and created objects can be a source of inspiration for a composition. Fearing, The Creative Eye, p. 38. Lauer, Design Basics. In relief printing, the raised parts of the printing block receive the ink, which is transferred to paper by means of pressure. When teaching composition, any of the principles can be emphasized; e.g., focal point, balance, etc. A great advantage of the printmaking process is that, with the exception of monoprinting, multiple prints can be made from one plate.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	INTAGLIO	
The student shall:	Have the student:	
Understand the basic process of intaglio printing and develop the skills required to produce a drypoint print.	Discuss through visual aids (i.e., reproductions, film, filmstrip, reference books) the intaglio technique; observe the soft edges and the amount of detail possible with this technique.	In the intaglio printing process, the print is obtained from ink-filled indentations that are cut or etched and lie below the surface of the printing plate. Artists: Pablo Picasso, Rembrandt, Albrecht Durer, Marten Schongauer, David Umholtz (M), Robert Achtemichuk (C) Saff and Saciletto, Printmaking: History and Process. Any one of the principles can be emphasized when composition is taught; e.g., 2-D space.
	Select the print image from several preparatory drawings that use lines massed together or criss-crossed to create areas of dark and light; select for the printing plate a piece of hard plastic or celluloid, or an old x-ray plate, without scratches; use a sharp tool (a needle, a sharpened nail, etc.) to scratch the design into the surface (deeper scratches reproduce darker lines); roll ink over the surface, and then rub it off with cheesecloth using circular motion; lay dampened paper	Drypoint is a technique that depends on line to produce the image. Only incised lines retain the ink and print. Depth and width of the line determine the quality of the line. Pressure and motion when the ink is wiped off the surface determine the overall tone of the pulled print.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	over the plate, and then lay one or more felt pads over the paper; run this through the press, which should be heavy (a washing machine wringer can be used); pull the print carefully.	Incision of repeated parallel lines results in a hatched effect or, if lines overlap, in a cross-hatched effect (see Drawing Glossary). Eichenberg, The Art of the Print. Fearing, The Creative Eye, Teacher's Guide, p. 41. Art Media and Techniques, p. 89. Lauer, Design Basics, Chapter 8.
	SERIGRAPHY Paper Stencil	
The student shall: Develop technical and design skills in silk-screen printmaking (serigraphy), and demonstrate an understanding of it.	Have the student: Examine contemporary uses of the silk-screen technique: record covers, posters, billboards, fabric patterns, wall paper, etc. Construct a silk-screen frame from four lengths of 1" x 2" lumber, stretch a length of screen silk (synthetic organdies are commonly used) taut across the frame and staple it down around the edges; tape the edges with brown paper tape, overlapping the edge of the silk; hinge the frame to a flat plywood base.	The serigraph is often used in commercial art printing because of its potential for large, eye-catching coloured shapes and because of its capacity for reproducing a large number of prints. Chieffo, Silk Screen as a Fine Art. Fearing, The Creative Eye, Teacher's Guide, pp. 39-40.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Make a design on cartridge paper or newsprint to fit within the frame and allow for a generous border all around. The design should be composed of flat shapes arranged in a negative/positive composition (see Drawing Section - Composition). Once rubber cement has been daubed on the paper stencil, it can be attached to the outside of the screen. The inside edges, where the screen meets the frame, should be taped with masking tape. Printing paper can be placed on the plywood base, its corners marked on the base with tape to ensure correct registration. Make the print by bringing the screen down and placing ink along one inside edge. Draw a squeegee across the screen to push the ink through all areas not blocked out by paper. (A heavy piece of cardboard can be used as a squeegee.) If other stencils have been prepared, additional coloured areas can be printed.	In serigraphy design, attention should be given to the choice of colours, which should relate to the purpose or desired effect of the print. When composition is taught, any one of the principles can be emphasized; e.g., balance. Art Media and Techniques, pp. 92-95. Lauer, Design Basics, p. 224. Artists: Tony Tascona (M), Bruce Head (M), Ted Howorth (M), Betty Dimock (M), Nancy Edell (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
The student shall: Demonstrate skill in producing a reduction print.	RELIEF Reduction - Styrofoam Print Have the student: Review the process of relief printing (Grade 7), including: - image transfer - negative/positive arrangements - compositional possibilities	Reduction is the process of removing some of the surface of a block, printing, then removing additional surface from the block and printing over the first colour print with a second colour. The process may be repeated with additional colours. The result will be a multi-colour print. Artists: Albrecht Durer - woodcuts, Paul Gauguin - woodcuts, David Milne (C) Lauer, Design Basics, p. 192. Bickford, New Media in Printmaking. Any design principles may be emphasized in this activity; e.g., focal point, balance.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Plan a design, considering shape and texture, for a reduction print to be taken from the surface of a styrofoam block; draw the design on the styrofoam surface with felt pen; cut away some sections and/or create textured areas by applying tacks or tape, or by scratching or puncturing the surface.	Removed areas will not print. Lines scratched into the relief surface and areas cut away will appear on the print as non-inked negative lines and shapes. Thus, where a solid area of colour is desired, the surface is left untouched.
Observe the results of removing surface area and the effects achieved from various cuts.	Print the block, observe and discuss the results; make necessary alterations to the block if the results are not satisfactory.	
Understand the design potential of overprinting for adding colours and altering images.	Do several prints of the altered surface in one colour, allowing these to dry; alter the design again, and print it with a new colour over the first design; repeat the process, if a third colour is desired.	Overlapping in colour can produce new colours.
	INTAGLIO Engraving	
The student shall:	Have the student:	
Develop the skills required for the production of a simple engraved print.	Review the intaglio process (introduced in Grade 7). Make preparatory primary contour line drawings (see Drawing Section - Line);	The engraved line has no burr since the tool removes the metal and does not merely displace it as in a drypoint. The engraver's tool is pushed forward through the mater-

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	keep the drawings simple but fill the picture plane; select one as an image for the engraving; recreate the drawing on the surface of a plastic or metal plate, using an engraving tool; ink and print using the same procedure as for the drypoint (see Grade 7). Compare prints that result from drypoint techniques to those that result from engraving techniques.	ial, not dragged through as in a drypoint. Artists: Albrecht Durer, William Blake, Rembrandt, Henri Matisse Lauer, Design Basics, p. 159. The massing of dots and/or lines is one way of altering the surface for tonal effects. The angle at which the engraving tool is held determines the quality of the line. The burr produced in a drypoint leaves a velvety line. A harder, sharper line occurs in an engraving.
	SERIGRAPHY Block-Out	
The student shall: Refine silk-screen printing skills and apply these to repeat-pattern designs.	Have the student: Review the silk-screening procedure introduced in Grade 7. Discuss silk-screen printing as it might be used in the production of repeat-pattern designs; e.g., in fabric printing, in wall paper production, etc.	Artists: Ben Shahn, Roy Lichtenstein, Robert Indiana, Ted Howorth (M), Bill Lobchuk (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Make a preliminary design on paper for a banner design, using alternating colours in a repeated pattern. The design may be a simple sequence or a checker-board. Prepare a silk-screen (see Grade 7); tape the prepared design to the screen; use lacquer or block-out solution to paint all the negative areas (areas not to be printed); let dry. Stretch the cloth banner on a flat, padded surface, and tack its edges down; print the design on the banner using one colour in alternate spaces, and let dry; clean the screen, and use a second colour to print the design in the unprinted spaces. The banner can be hung from a piece of wooden dowelling. (Burlap or unbleached cotton makes an inexpensive banner.)	Repeat-pattern makes for a unified design. Alternating colour helps achieve variety.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	RELIEF Reduction (Advanced) - linoleum	
The student shall:	Have the student:	
Understand the techniques of the linoleum printing process.	Review the reduction process introduced in Grade 8. Cut the linoleum to the desired size and shape, and sand its surface to remove the finish; draw a design on paper the size of the linoleum block that emphasizes simple shapes; use carbon paper to trace the design on the block; blacken all the areas on the block to be left untouched. (These are the surfaces that will print.)	The reduction process of making multicoloured prints can be applied to linoleum block printing. Artists: Kathe Kollwitz, Edward Munch, Ernst Kirchner, Emil Nolde Brommer, Art in Your World. Any of the design principles may be emphasized in this activity; e.g., focal point, balance. Stoltenberg, Collograph Printmaking. Fearing, The Creative Eye, Teacher's Guide, p. 36. Art Media and Techniques, p. 83.
Demonstrate the ability to use tools properly and safely.	Carve away negative areas exercising caution in the handling of sharp tools; cut away from the hands. (The block may be warmed by immersion in hot water to make cutting easier.)	Various methods of surface altering can result in textural effect. - repeated lines - scraping and gouging

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Roll ink evenly over the surface and pull a print, re-inking each time a series of prints is pulled.	A proper depth of cut leads to a clearer image.
Perceive the relationship between surface reduction and the 2-D print surface; e.g., colour overlap and depth of cut.	Cut away more areas from the block, using one of the prints as a guide. These areas will not be overprinted and will retain the first colour. Ink the block with a second colour.	Only relief areas will print and affect the 2-D surface. Overlapping in colour can result in new colours.
Understand ways to control the reversed image, registration, and offset.	Reprint over the series of prints with the second colour. This process may be repeated for additional colours.	The printed image is the reverse or mirror of the block; thus, the design on the 2-D surface could be reversed in the drawing stage before printing. Proper registration results in control; offsetting creates line edge and multiple-image effect.
	Cut a mat and frame a print properly.	If several prints are made from one plate, they may be numbered in sequence to form an "edition." (See Grade 9 - Serigraphy.)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	INTAGLIO	
	Engraving (Advanced)	
The student shall:	Have the student:	
Refine skills required in the production of a well-designed intaglio print.	Review the intaglio processes introduced in Grades 7 and 8.	A successful composition is dependent on controlled use of: - the elements: line, texture - the principles: unity, rhythm, balance, etc.
	In response to visuals, discuss the historical development of the intaglio process and its contemporary applications.	Artists: Francesco Goya, Honore Daumier, Paul Klee, Arnold Saper (M), David Umholtz (M)
	Combine both drypoint and engraving techniques to produce a print. Use the different qualities of the lines produced by each method to create variations in the total design.	Concentrations of incised lines may result in textural and tonal effects.
	SERIGRAPHY	
The student shall:	Have the student:	
Develop technical and design skills in the production of silk-screen prints by the photo-sensitive method.	Review the silk-screen procedures outlined in the preceding grades.	Artists: Victor Vasarely, Andy Warhol, Roy Lichtenstein
	Observe a demonstration in which photo-sensitive emulsion is used to produce a	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	silk-screen; discuss the following points: - the mixing of the chemicals according to the directions to make the emulsion; - the coating of the screen; - the drying of the screen in a dark place--a tight, closed drawer or box; - the preparing of the negative image by various methods: opaque ink drawings on tracing paper, cut or torn thick paper or found objects placed on the screen; - the exposure of the screen and prepared negative to light for the specified time; - the washing out of the blocked-out areas.	Johnston, Design on Fabric Media. Ivins, How Prints Look. Biegeleisen, Design and Print Your Own Posters.
	Discuss advantages of the photo-sensitive method.	Finer details in line, shape and space are possible than with a hard-cut stencil.
	Prepare a screen using this method; design a negative--unified through the repetition and grouping of shapes in a planned pattern--using a combination of found objects and cut-out paper shapes; expose and print.	Artists: Andy Warhol, Tony Tascona (M), Lidi Kuiper (M), Don Proch (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Design a negative using opaque ink or tracing paper; use a combination of line and shape in the image; expose and run off an edition.	Prints in an edition are numbered in sequence as they are produced, each number appearing as a fraction. The top figure in the fraction discloses the position of the print in the series; the bottom figure indicates the total number of prints in the series; e.g., the number of 6/25 on a print means that this is the sixth print in a total edition of twenty-five.

MATERIALS

	INTAGLIO	PLANOGRAPHY (MONOPRINT)	RELIEF	SERIGRAPHY (SILKSCREEN)
Graphic Plate	celluloid plastic x-ray plates metal sheets	glass with taped edge cookie sheet formica desk	wood block linoleum block cardboard plate to which found objects have been glued (collograph) styrofoam block	Stencils cardboard paper lacquer profilm and its solvent photosensitive emulsion and negative
Tools	brayer etching needles nails press or a washing machine wringer	brayer spatula tongue depressor pencil stick	scissors mat knife burin	stapler gummed tape squeegee drawing pens and brushes blades frame cardboard, wood, or embroidery hoop organdy or nylon
Printing Media	printing ink, waterbase	printing ink, waterbase tempera paint (thick) finger paint acrylic paint	printing ink, waterbase acrylic paint (with retarder)	fingerpaint thickened with powdered tempera printing ink, waterbase textile ink
Printing Surfaces	assorted paper	assorted paper	assorted paper fabric, finely woven in solid colour	assorted paper cardboard cover stock fabric, finely woven in solid colour

PRINTMAKING PROCESSES

There are five basic printmaking processes:

- planographics
- relief
- intaglio
- serigraphy
- photography (treated in a separate section)

THE PLANOGRAPHIC (LITHOGRAPHIC) PRINTING PROCESS

Lithography: The print design is made by drawing with a grease crayon or pencil upon a surface that has an affinity for both grease and water. In this process there is no cutting of the surface. Pressing paper against the surface produces a print.

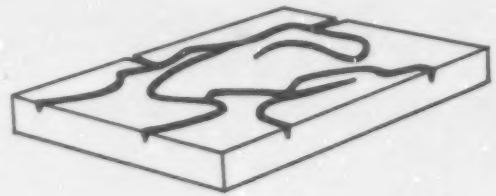
Monoprint: The print is made by pressing paper on an inked plate and drawing on the paper surface with a blunt instrument which picks up ink on the face-down side; or by inking only some areas of the plate in a design which is picked up by paper pressed down on the surface. Only one good print can be obtained.

THE RELIEF PRINTING PROCESS

The print is made by pressing paper to a plate that has inked, raised surfaces. These raised surfaces may be the residual areas in a plate that has had sections carved away as in a linocut or they may be the surfaces of objects glued to a plate (collograph). The lower surfaces do not print.

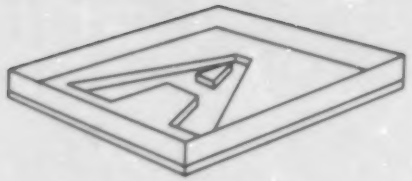
THE INTAGLIO PRINTING PROCESS

The image is incised into the plate. After the plate is inked, the upper surfaces are wiped clean, leaving ink behind in the incised lines. Paper is pressed over the plate, pressed into the grooves, picking up the ink to produce the printed image on its surface.



SERIGRAPHY: STENCIL PRINTING PROCESS

The print is made by forcing ink or paint through an opening in the stencil to print on the underlying paper or fabric surface.



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GLOSSARY OF TERMS

Brayer: A rubber-covered roller for inking blocks or plates.

Block-Out: Parts of the open screen that are blocked out to create a stencil image; glue, paper or photographic emulsion are block-out media.

Burr: The irregular ridge of metal or plastic thrown up on either side of a scratched incision.

Collography: A process of making a relief print from a collage of objects and materials glued to a surface.

Drypoint: The intaglio process of drawing directly on a metal plate with a steel needle, creating a furrow and a rough burr which holds the ink and gives the printed line a velvety quality.

Edition: A series of consecutively numbered prints that have been pulled from the same plate.

Engrave: The act of cutting into wood, stone, metal, or plastic with a graver, burin or electric engraving tool.

Graphic-Process: A process used to produce or reproduce copy.

Impression: A print taken from any surface or from a surface specifically designed for print-making.

Inking the Surface: The act of rolling, dabbing, or brushing the surface of a graphic plate with ink or paint.

Intaglio Printing: A printing process in which the ink lies in depressed areas below the surface of the plate; e.g., an engraving.

Linoleum Plate: A block of linoleum cut with gouges, knives, etc., where the image to be printed is that which is raised (battle-ship linoleum is usually used).

Monoprint: A print made by working with printing ink directly on a plate or piece of glass and then taking an impression on a sheet of paper by rubbing or printing. [Usually only a single (mono) print can be produced.]

Photostencil: A screen coated with a chemically-made, light-sensitive material.

Planography: A process of printing from a flat surface which is neither raised nor incised; e.g., a monoprint or lithograph.

Plate: The original printing surface that is treated in some way to create a surface which produces the printed image.

Plohography: The common name for the planographic process.

Printing: The art of making many copies from a single master plate or plates.

Pull a Print: The act of peeling off the imprint paper from the plate.

Reduction: The process of removing some surface of the plate, printing and repeating the process by removing additional surface and printing over the first colour after it has dried. (This can be repeated to a desired number of colours.)

Register Mark: A mark, usually a small cross, in the margin of a plate to facilitate the alignment of successive plates to a multicolour print.

Relief Printing: A method of printing in which the surfaces of a plate are raised and receive the ink or paint; e.g., a linoleum block.

Reverse Image: Mirror image.

Rubbings: Impressions taken by laying a sheet of thin paper over a textured surface, then working across it with a crayon, chalk, etc.

Serigraphy: A printing process involving stencils and a screen; also known as silk-screening in the commercial world.

Squeegee: A rubber blade mounted on a handle used to force ink or paint through the mesh of a silk-screen.

Stencil: A sheet made from card, paper, etc., into which a design has been cut to create open spaces through which ink is rolled or pushed to imprint on an underlying surface.

Woodcut: A relief print made from a block of wood whereon the design is gouged, chiselled or cut in "relief."

HISTORICAL CHART

RELIEF

China (55 A. D.)

- Seals printed in white on red by intaglio impression or red on white by relief impression
- Currency printed from bronze plates (Kublai Khan)
- Rubbings made from stone impressions of famous writings

(105 A. D.)

- Paper invented
  Different coloured ink applied to carved seals to be stamped on silk, fabrics, wood, and bamboo strips

(618 A. D. to 906 A. D. - T'ang Dynasty)

- Images and characters first cut into wood blocks
- Books published

(770 A. D.)

- First known block print
- Early printing ink made of burned wood or lacquer mixed with glue and formed into paste or brick, soluble in water

Western World (600 A. D.)

- Design cut in wood and printed on textiles in the Near East considered forerunner of the woodcut
- Mass production made possible by availability of paper in the late middle ages
- Early woodcut appeared in the popular form of the playing card; also images of superstition and the hereafter
- Woodcut turned to more secular subjects after the Gothic period
- Chronicles considered forerunners of the political cartoon

(1400s)

- Books made with woodcut instructions
- Single sheet image of popular patron saints pasted inside cabinet doors, trunks, wood tables, etc.
- Craft guilds established, print cut by professional formcutters
- Block books created in the Netherlands, i.e., the Apocalypse, the Biblica Pauperum, and others
- Printing press established by Johann Gutenberg (1438)
- Book printing revolutionalized
- Bible first printed with movable type

(1500s)

- Woodcut became a reproductive medium

(1600s)

- Chiaroscuro developed into a multi-colour reproductive medium

(1700s to 1800s)

- Wood-block print reborn
- Pagan innocence images created by Gauguin
- Multi-colour wood block print technique developed by Munch
- Political cartoon viewed
- Expressionistic approach through the rugged wood block developed by Die Brücke group, Kollwitz, Bacloch, and others

- Break from "content" and concentration on "piece form and colour" pursued by Blue Rider group
- Range from Antonio Frasconi's miniatures to giant triptychs
- "Rubbing" woodcut technique developed by Carol Summers
- Paper cutout mounted on cardboard or wood and varnished (collograph) developed by Edmond Casarilla
- Cardboard, pressboard, vinyl tiles, plastic, masonite, plexiglass, and plastics experimented with

INTAGLIO

Primitive Societies

- Line scratched into pieces of bone, soft stone, skin, or bark

Early Civilizations

(Egyptian)

- Seal and gem cutters

(Greek)

- Coin designers and mirror engravers

(Etruscan)

- Medieval weapons and armor
- Creativity extended to skilled engravers, artists

European Civilization

(1500s)

- Drypoint added to the engraved line
- Inking, wiping, and pulling of prints developed
- Etching invented (Hopper)

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(1600s)

- Etching technique perfected by Rembrandt

(1700s)

- Roulette technique, duplication of a crayon line, and stipple technique developed by Boucher
- Aquatint developed by Goya

(1800s)

- Lithographic technique developed
- Books and portfolios produced

(1900s)

- Colour lithography developed by Bonnard

SERIGRAPHY (SILK-SCREEN)

China (500 A. D. to 1000 A. D.)

- Stencil patterns used
- Patterns transferred to cloth for embroidery

Japan

(1500s - Kamakura Period)

- Sumural leather armor and horse trappings embellished in the stencil manner

(1600s)

- Silks printed through silk-screen stencils

Western World

(1800s)

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- Furniture, walls, and fabrics decorated by stencil in Colonial America
- Mass reproduction, commercial process in both Europe and America

(1900s)

- 1930
  - Commercial monopoly of this process redefined by Shahn, Gevathmey, and Stenberg

  - Painterly quality added
  - Individual styles
  - Subject matter included social and political issues

- 1950
  - Serigraphy became a recognized art form
  - New concepts of popular art movements
  - Advanced technological techniques included the photographic approach

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sculpture

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SCULPTURE

Throughout history, monuments in marble, wood, and bronze have been fashioned to glorify both the divine and the human. Today, along with traditional themes and materials, innovative ideas are given three-dimensional form in space-age materials. This portion of the art program provides opportunities for students to see how the expression of the sculpture is related to its form with reference to such masters as Picasso, Moore, and Giacometti. It also encourages creative growth in students by giving them the chance to experiment with materials and processes as well as with content possibilities.

The sequence in which formal and technical sculptural skills are developed in students should depend on their ability. Activities in this program are placed according to the growth in student ability between grades 7 and 9, older students generally showing an improved facility for the performance of technical skills related to manipulating material and formal skills related to three-dimensional composition. In this program, technical skills can be introduced according to the level of their complexity, while formal skills can be introduced and reviewed through concepts relevant to both two- and three-dimensional design.

The elements of design--line, shape, colour, and texture--operate in sculpture in flexible ways. Whereas in two-dimensional works the elements remain constant, in three-dimensional sculpture they change with the viewer's relative position and the changing light.

The principles of organization also operate in ways unique to sculpture. Whereas in two-dimensional works movement either relies on the visual suggestion of primary and secondary colours or becomes plainly physical (as in kinetic works), in sculpture movement and balance are visual and physical at once. A good sculpture has a visual feeling of equilibrium, while maintaining physical equilibrium at the same time.

The recommended teacher resource for this unit is Virginia Timmins' Art Materials, Techniques, Ideas: A Resource Book for Teachers (Worcester, Mass.: Davis, 1974).

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	SUBTRACTIVE	
The student shall:	Have the student:	
Develop an understanding of the processes involved in carving a solid material to create a three-dimensional sculptural form.	Discuss Michelangelo's description of sculpture as "feeling the form within" in reference to the subtractive method of sculpture.	The subtractive process of sculpture involves carving material away from a solid to arrive at the desired 3-D form.
	View examples of the carving process in which material is removed gradually to reveal the forms.	The approach of "feeling the form within" encourages the student to deal with the actual shape of the material and discourages attempts to carve forms inappropriate to the particular volume.
	Discuss the care that must be taken in removing material to prevent carving away too much, and in evaluating the form from every angle continually to create a unified sculpture.	"Economy of means" is a useful principle to apply to carving. The form envisioned should relate to the original block sufficiently so that a minimum of material needs to be carved away.
Develop the skills required in the production of a carved, three-dimensional sculpture.	Prepare a carving medium by mixing plaster; pour the liquid into containers, such as milk cartons, reinforced cardboard boxes, or plastic bags, allow it to set, and then remove the container. (Other suitable carving media are soap, wax, or clay.)	Fearing, The Creative Eye, Teacher's Edition, p. 50. Artists: Barbara Hepworth, Henry Moore, Michelangelo, Eskimo sculpture Fearing, The Creative Eye, Teacher's Guide, p. 46.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Select a subject that can be expressed appropriately in a carved, three-dimensional shape, such as a crouching animal, a head, etc.; think of a form that requires little cutting away; examine the block from all angles, visualizing the shape of the form within.	
	Begin carving, roughing out all large areas first, leaving details until later; be sure that projections such as legs are not so thin or long as to be easily broken off; consider surface treatment: polished, coloured, or a combination of these.	Surface treatment should create a textural quality that is appropriate to the theme.
	ADDITIVE	
The student shall:	Have the student:	
Observe and understand the principle of visual balance in three-dimensional forms.	Study various three-dimensional objects in the world of nature and manufactured things (trees, houses, animal and human forms, furniture, vases, plants, etc.); discuss symmetrical and asymmetrical balance, noting that the sensations or feelings each promotes are affected by shape and colour.	Visual balance is an even distribution of visual weight and may be achieved by the use of two basic types of organization: symmetrical and asymmetrical balance. Shapes, lines, colours, etc., are associated with visual weight; e.g., large appears heavier than small, dark heavier than light, etc. Visual balance is thus obtained by distributing these

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		elements equally on either side of a central axis. Symmetrical balance simply repeats the elements on each side as in a mirror image. Asymmetrical balance offsets the elements against each other and balances dissimilar elements by equating visual weight. Lauer, Design Basics, pp. 36-63.
Use an additive process to model in a plastic medium (papier-mâché or clay) a three-dimensional form that demonstrates an understanding of the principle of balance.	Make a papier-mâché mask emphasizing either symmetrical or asymmetrical balance. A ball of crumpled newspaper taped to a board or table top can be covered with layers of strips of paper and paste. Features, such as nose, brows, lips, etc., can be modelled from papier-mâché pulp. The balance can be further emphasized through the use of colour.	The additive process in sculpture refers to the building up of materials into a three-dimensional in-the-round form. Stevens, "Primitive Masks," Art in the Round. Reinhold Visuals S. Davis, "Seme," Organization No. 3. "Mayan Whistle in the Form of a Seated Figure" (Mexico), Mass No. 7. "African Mask" (Kifvebe), Line No. 21. "Helmet Mask" (Ehan), Surface No. 16.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		"Apache Devil-Dance Headdress" (United States-Arizona), Organization No. 2. Artist: George Segal
	View and then discuss balance in the human form, select a theme or feeling which is suitably expressed by either asymmetrical or symmetrical balance; e.g., "dignity" is best expressed by symmetry, "flight" by asymmetry. (For more description of methods of clay modelling, refer to the Ceramic Sculpture section in the Ceramics unit.)	Balance in free-standing sculpture should work from all angles.
	ASSEMBLAGE	
The student shall: Understand the principles of unity and variety as they are applied to relief assemblage.	Have the student: Discuss the relief sculpture of Arp and Nevelson, noting especially the way in which forms are organized to achieve unity.	Assemblage is defined as sculpture constructed from disparate materials and objects. Components of assemblage relief should be selected and organized according to the principles of unity and variety in order to present a unified yet interesting construction.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		Artists: Jean Arp, Louise Nevelson, Cecil Richards, Charles Biederman, Don Proch (M) Rasmussen and Grant, Sculpture from Junk. Lauer, Design Basics, pp. 2-19.
Select the appropriate sculpture materials and techniques and use these to create a unified composition in found object relief.	Select a number of found objects of varying sizes, shapes, colours, and textures; experiment with the organization of these objects on a rigid board until the composition is unified (employs principles of unity and variety); then glue objects in place.	Consideration should be given to the shape, size, colour, and texture of assemblage components, as well as to the principles of composition. Fearing, The Creative Eye, Teacher's Guide, p. 11; Vol. 1, p. 160.
	OTHER PROCESSES Casting	
The student shall: Understand the reversal process in casting a relief sculpture.	Have the student: Carve lines and hollow out areas to form a design in a box of wet sand. Liquid plaster poured over this will form a relief sculpture when set.	Cast forms deal with reversal in that hollow forms in the original become projections in the cast and vice versa. Fearing, The Creative Eye, Teacher's Guide, p. 50.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Carve a relief sculpture into a thick clay slab; leave a ridge of clay all around the outside edges and pour plaster into this. The plaster will form a negative mold from the positive clay relief. This mold may be used to cast a positive copy in plaster, or liquid clay, of the original clay relief.	Form organization in relief sculpture is similar to two-dimensional organizations. Dawson, Sculpture with Simple Materials. D. Hanson, "Artist in Chair," Fantasy and Illusion No. 8. Artists: Peter Agostini, Ric Gomez (C), Leo Mol (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	SUBTRACTIVE	
The student shall:	Have the student:	
Apply principles of organization such as harmony, balance, and movement to the carving of materials.	Carve a form from plaster, soft wood, etc., that emphasizes upward movement according to a chosen theme (e.g., flight or dance); attach it to a base at one point only so that it seems to be just taking off; keep the other forms for this sculpture similar in feeling--soft and flowing or sharp and angular.	Balance is both visual and physical. Harmony can be achieved by a repetition of similar forms, colours, textures, or values.
	Carve a form incorporating wave-like flowing contours that lead the eye all around the form.	Movement can be suggested by contours. Artists: Michelangelo, Auguste Rodin, Henry Moore, Barbara Hepworth, Cecil Richards Meilach, Creative Carving. Read, Concise History of Modern Sculpture. Reinhold Visuals "Nigerian Guardian Spirit" (Western Ljo or Urhobo), Organization No. 16. Film "Quiet Wave"

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	ADDITIVE	
The student shall:	Have the student:	
Develop skills in modelling sculpture that show an understanding of positive-negative space organization.	View sculptures by Rodin, Lipchitz, Giacometti, and Moore.	Positive space is represented by mass.
	Discuss the sculptors' use of positive and negative space.	Positive space can extend into negative space.
	Use papier-mâché or wood pulp on a constructed armature to model sculptures that extend into and enclose space.	Negative space surrounds and defines the positive space.
		Negative space can be enclosed by positive space.
		Goldwater, What is Modern Sculpture?
		Artists: Auguste Rodin, Jacques Lipchitz, Alberto Giacometti, Henry Moore, Joe Fafard (C)
	ASSEMBLAGE	
The student shall:	Have the student:	
Demonstrate an understanding of the principles of kinetic movement in a formally organized three-dimensional composition.	Study Calder's mobile construction; read the chapter, "Seeing Structure, Flying and Moving Construction," in The Creative Eye.	In a kinetic sculpture such as a mobile, movement and balance are physical as well as visual.
		Fearing, The Creative Eye, p. 152.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Discuss mobile construction from the point of view of lines and shapes moving through space.	Goldwater, What is Modern Sculpture? Artist: Alexander Calder
Develop skills in the construction of a physically balanced mobile sculpture.	Construct a simple mobile sculpture from wire or thread, and coloured paper or cardboard shapes; utilize a single source of suspension (a wire rod, a disc, etc.).	The movement of asymmetrically balanced mobiles tends to appear more animated than that of symmetrically balanced mobiles.
	Construct a more complex mobile sculpture, the elements of which are counterbalanced to move independently; use paper, cardboard, or plastic, and wire which is flexible yet firm enough to hold its shape.	Component parts should be selected with the principle of unity (harmony) in mind. Brommer, Wire Sculpture and Other Three-Dimensional Construction. Lauer, Design Basics, p. 123. Reinhold Visuals S. Brody, "Street Banner," Movement No. 4.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	OTHER PROCESSES	
	Wire Sculpture	
The student shall:	Have the student:	
Develop skills in the construction of linear sculptures.	Discuss the attributes of line common to both two-dimensional and three-dimensional art. (See the Drawing Unit - Line.)	Line has direction (horizontal, vertical, and diagonal) and quality (rigid, curved, angular, jointed, heavy, light, etc.).
	Use wire or other linear material (sticks, tubes, coils, etc.) to construct:	
	- a sculpture which suggests movement in space.	Movement in space is suggested by the direction of linear forms.
	- a sculpture which suggests volume.	Mass can be suggested by linear elements which enclose a space.
		Brommer, Wire Sculpture and Other Three-Dimensional Construction.
		Lauer, Design Basics, Ch. 8, p. 148.
		Artist: Alexander Calder

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	SUBTRACTIVE	
The student shall:	Have the student:	
Develop skills in carving three-dimensional forms that use positive and negative space.	Study Henry Moore's two-piece reclining figures. Carve two related forms which are to be placed side-by-side on a base; organize the forms so that they seem to be on the verge of fitting together; e.g., hollow spaces countering projecting forms.	Negative space is part of the visual structure. It can emphasize the positive mass or the movement suggested by contours. Artists: Henry Moore, Barbara Hepworth, Eskimo sculpture Fearing, The Creative Eye, Vol. 1, p. 108.
Refine skills in carving three-dimensional forms that have unity and variety.	Carve several forms that will be finally grouped together to create one sculpture; repeat some of the shapes in each section; think of a group of dancers or a crowd of mourners.	
Understand the relationship between form and expressive content.	Carve a form that is non-representational but that nevertheless "tells a story" through its shapes and forms; choose a theme such as anger, protection, despair, etc.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	ADDITIVE	
The student shall:	Have the student:	
Develop skills in modelling sculpture that show an understanding of visual movement in a three-dimensional form.	Discuss themes or ideas that are appropriately expressed through visual movement and ways in which three-dimensional forms can express this movement; base a sculpture on one such theme (e.g., flight, marching, ballet), creating the appropriate sense of movement through flowing lines and shapes.	Visual movement can be suggested by primary and secondary contours in such a way that the viewer is guided from one area of the sculpture to another along these contours, which travel all around the form. (See Drawing Unit for discussion of contours.) Art Media and Techniques, p. 111.
	Construct hollow armatures of chicken wire or light gauge metal mesh; apply plaster-soaked strips of cloth to them; continue to apply liquid plaster over this base, pouring it, brushing it or scooping it on until the final desired shape is obtained; refine the surface by sanding or carving.	Preliminary form organization is done in building the armature. Extension into space is facilitated by the strength of the armature. Art Media and Techniques, pp. 109-112.
	ASSEMBLAGE	
The student shall:	Have the student:	
Construct a free-standing sculpture composed of individually designed components that shows an understanding of the principles of organization.	Study and discuss examples of constructivist sculptures and assemblages; e.g., works by Gabo, Arp, Nevelson, Caro, Calder, Picasso.	In assemblage, the use of shapes that are varied but at the same time similar creates visual rhythm and maintains the organizational principle of unity with

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		variety. Balance becomes an essential component.
	Discuss ways in which abstract shapes can be designed to relate to one another so that they might be classified as angular or rounded, geometric or organic, rectilinear or curvilinear. Select a theme that might be expressed in terms of one of these classifications. Design and cut shapes expressive of the chosen theme from flat, rigid material (cardboard, light metal, balsa wood, etc.) and assemble these shapes to form a free-standing sculpture. For more variety, add component parts created from more massive materials (clay, wood).	Artists: Jean Arp, Naum Gabo, Louise Nevelson, Anthony Caro, Alexander Calder, Pablo Picasso, Michael Bigger (M), Don Proch (M), Bruce Head (M), Dale Amundson (M), Michael Truelove (M), Doug Bentham (C)

MATERIALS

clay
wood
plaster
papier-mâché
wood pulp
cardboard
paper
wire
chicken fence wire
steel rods
light metal plates
various found objects

Most of the above materials can be obtained locally, many through the process of recycling old "junk." Plaster can be purchased more economically in 50 lb. bags from building supply companies than in small quantities from hobby or craft stores.

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GLOSSARY OF TERMS

Abstract: A natural form that is modified to suit the formal or expressive needs of the artist.

Armature: A skeleton or framework upon which a sculpture is built.

Assemblage: A process of sculpture in which pieces are joined in some fashion to make the completed form.

Content: The expressive statement; that which is expressed by the form.

Form: The organization of art elements according to principles that will develop an organic unity in the total work of art; in sculpture, a form is a "three-dimensional shape."

Kinetic: The property of physical movement.

Linear Movement: The suggestions of visual movement along lines, shapes, and contours of a sculpture.

Mass: The physical bulk of a solid body of material.

Medium: A material used for sculpture; e.g., plaster, wood, stone, clay.

Mobile Sculpture: A sculpture which is suspended and moves in response to air currents.

Non-Objective: A term applied to an art form having no representational subject matter as content.

Papier-Mâché: A modelling medium consisting of paper pulp mixed with paste; also, water-soaked strips of paper and paste.

Physical Balance: The property possessed by an object that allows it to remain in a static, designated position.

Primary Colour: The line defining the outside edge of a shape.

Relief: A limited three-dimensional mass bound to a parent surface; a partial projection from a main mass, the degree of the projection determining the type of relief.

Representational: A term applied to an art form bearing direct and more or less accurate resemblance to a natural form.

Secondary Colour: A perceived line, defining the relief structure of a form existing within the confines of the primary colour.

Three-Dimensional: The quality of possessing measurements of length, width and thickness; in sculpture, a solid surrounded by space.

Visual Balance: The property possessed by an object that gives it a visual feeling of equilibrium.

Wood Pulp: A modelling medium of sawdust and paste.

HISTORICAL CHART

Greek (600 to 50 B. C.)

- Human form idealized
- Praxiteles "Hermes," c. 325 B. C.
- Bronze sculptures at Pergamum, c. 200 B. C.
- The Laocoon Group, c. 125 B. C. (Greek sculpture influenced later developments in sculpture; e.g., Imperial Rome, Italian Renaissance and French Neo-Classic periods)

Roman (100 B. C. to 400 A. D.)

- Sculpture primarily documentary in intent
- Sculpture-portrait introduced, c. 80 B. C.
- Equestrian statue of Marcus Aurelius in bronze, c. A. D. 161-180

Middle Ages (500 to 1000)

- Sculpture primarily an adjunct of architecture (usually religious)

Romanesque (1000 to 1100)

- Large scale stone sculpture revived (usually attached to church facades, representing religious subjects)

Gothic (1100 to 1400)

- Period began in France and spread to England, Germany, and Italy
- Forms less iconographic and lighter in feeling than previous medieval sculpture

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The Renaissance (1400 to 1600)

- Return to free standing sculpture
- Donatello's "St. George," c. 1415
- Michelangelo Buonarroti (1475-1564), most prolific and masterful sculptor of the High Renaissance period in Italy

Baroque (1600 to 1700)

- Lorenzo Bernini (1598-1680)
- "David" (1623, marble), classical form projected, surrounding space dominated

Neoclassic and Romantic (1750 to 1825)

- Antonio Canova (1757-1822)
- Portrait sculpture of Pauline Borghese (1808), idealized style of classical sculpture

Modern Sculpture (1840 to present)

- Auguste Rodin (1840-1917), French sculptor of "The Thinker" (1879-1889); recognized as first sculptor of genius since Bernini
- Aristide Maillol (1861-1944), bronze sculptures inspired by Early Classical Greek sculpture
- Wilhelm Lehunbruck (1881-1944), highly abstract forms in wood, stone, and bronze expressing ideas
- Raymond Duchamp-Villon (1876-1918), involved with Dada and Constructivist movements
- Pablo Picasso (1881-1975), twentieth century's most prolific artist; sculptures show influence of primitivism

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- Umberto Boccioni (1882-1916), leader in Futurist movement
- Marcel Duchamp (1887-1968), involved in Dada movement; originator of "ready-made" sculptures
- Hans (Jean) Arp (1888-1966), involved in Dada movement
- Naum Gabo (b. 1890), leader in Constructivist sculpture movement; used new materials such as sheet plastic, glass, and metal
- Alexander Calder (1898-1975), inventor of mobile sculptures
- Henry Moore (b. 1898), sculptures combined elements of rugged landscape and human form
- Alberto Giacometti (1901-1966), figure sculptures as statements of man's fragility and insignificance
- David Smith (1906-1965), welded steel sculptures; led to Minimalist ideas in sculpture
- Anthony Caro (b. 1924), welded steel sculpture, linear in character
- Eduard Paolozzi (b. 1924), assemblage sculpture
- Louise Nevelson (b. 1900--U.S.A.), assemblage sculpture
- George Segal (b. 1924--U.S.A.), life-size plaster sculpture cast from human models
- Claes Oldenburg (b. 1929--U.S.A.), best known for soft sculptures
- Ernest Trova (U.S.A.), figurative sculptures reflecting high technology

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CERAMICS

"Man, both super-civilized and uncivilized, has been fascinated by pottery for seven thousand years, using it not only as one of the great practical standbys in life, but as a means of direct visual expression, endowing hand-made bowls with ears and feet, refining wheel-made pottery to peaks of aesthetic excellence, allowing clay and the forms it will take to mirror the society in which we live."[1]

As the foregoing quotation indicates, ceramic art is important in both historical and contemporary terms. This program cannot do justice to all aspects of ceramics, however, given its time constraints. What it can provide is a structure teachers can use to help students develop both a theoretical understanding of the art and a sensitivity towards working with clay.

The ceramics unit introduces students to presentation and discussion of ceramic art, past and present, as well as to principles, concepts and techniques related to working with clay; more generally, it builds perceptual awareness of the visual elements of art and design. Four sections of study make up the three-year program: "The Nature of Clay," "Hand-Building Techniques," "Wheel Forming Processes," and "Ceramic Sculpture." Teachers can decide how they wish to introduce these sections, the single recommendation being that once a section is adopted, the progression should be sequential from grades 7 to 9.

The recommended teacher resource for this unit is Charlotte Speight's Hands in Clay (Sherman Oaks, Calif.: Alfred, 1979).

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[1] Tony Birks, Art of the Modern Potter (New York: Van Nostrand Reinhold, 1972), p. 7.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	THE NATURE OF CLAY	
The student shall:	Have the student:	
Understand the visual, physical, and chemical properties of clay through definition and experience.	Use various available clays to discuss colour, texture, and form as visual properties of clay in a plastic state. Discover through observation and practice: - how clay stiffens and later becomes rigid by drying in the open air (the drying process of clay: plastic to dry state); - how clay wrapped in damp cloths can be softened back to the plastic state; - how clay wrapped tightly in plastic can be held to a constant state; - how clay hardens and shrinks during firing.	All natural and created objects are made up of materials that exhibit unique visual properties. The specific physical and chemical properties of clay allow for its shape and texture to be controlled and manipulated. Speight, Hands in Clay. Fearing, The Creative Eye, Teacher's Guide, p. 31.
Use proper terminology to describe different stages of clay.	When working with clay, continually refer to the stage that the clay is in.	Greenware, bisque ware, glaze ware, and leather-hard are words used to describe the various stages of clay. Fearing, The Creative Eye, Teacher's Guide, p. 35.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Gain an understanding of clay as an organic material.	Discuss the three kinds of clay: local, refined, and commercially-prepared clay. (See Clay: Kinds and Preparation at the end of this unit.)	Clay is an organic material. "Portfolio: Ceramics," School Arts, 78, No. 3 (1978).
Find local clay deposits and experiment with these.	Locate natural deposits of clay at construction excavations, lake shores, or river banks. Test fire it to determine its usefulness. (See Firing Techniques at the end of this unit.)	The usefulness of any clay for ceramic purposes is determined by its ability to be molded into and to hold a shape when set and when fired.
	HAND-BUILDING	
The student shall:	Have the student:	
Develop skills in various hand-building techniques: pinch, coil, and slab.	Observe a teacher demonstration of the pinch, coil, and slab methods of hand-building.	Pinch, coil, and slab are three hand-building techniques. Sapiro, Clay: Handbuilding.
	View a slide presentation on forms that have been made using various hand-building techniques.	Speight, Hands in Clay, Chapter 7. Berensohn, Finding One's Way with Clay.
	Construct a thin-walled pinch pot from a ball of clay, concentrating on the "feel" of the material. (Use the procedures listed in Clay: Kinds and Preparation.)	Three-dimensional form can be experienced through the sense of touch.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Experiment with larger balls of clay to make larger pots, using the fist and slap method of Mexican craftsmen. Other possible experiments include patting the clay against the elbow to make larger wide-mouthed pots or using sticks to make larger pinch pots. Make a group of three pinch pots of equal size and join them together side by side. Make a pinch pot, and then paddle it gently with a flat stick to alter its shape. Explore various form possibilities using the coil technique: - straight cylinder forms - curved forms - tapered forms - combinations of the above Explore methods by which to texture forms; i.e., use fingers, tools, paddles, or stamps, or use coils themselves as a built-up surface decoration. Make a pinch pot and add a coil neck and foot to it.	Three-dimensional mass can be re-arranged and altered to change its appearance. Historical Reference: Neolithic, African, Japanese coil pottery Artist: Ken Chernavitch (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Infer a similarity between inner and outer structure in using the slab method of hand-building.	Explain various methods of making clay slabs and discuss the different ways of using this technique. (See Clay: Kinds and Preparation.) Use supports to form ceramic objects in the following ways: - by draping clay into a mold; - by folding clay over a plastic bag filled with sand or other similar loose material; - by draping clay over a "found" mold; - by wrapping a slab of clay around a cardboard mailing tube or dowel, then finishing both the bottom and the top. Turn and smooth the edges of a clay slab to make simple plates or trays. (See Firing Techniques.)	The shape of an inner support system used to build up form will determine the appearance of the outer structure. Sapiro, Clay: Handbuilding, pp. 50-69.
	WHEEL-THROWING	
The student shall: Gain an understanding of the basic processes of wheel-throwing.	Have the student: View and discuss examples of the four different processes of wheel-throwing: centering, opening, raising, and forming.	Clay can be manipulated and altered by technical as well as manual means. Sapiro, Clay: The Potter's Wheel.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Compare wheel-throwing with hand-building pinched forms.	
	Wedge a mass of clay until it is of a workable consistency, air bubbles eliminated; slice the wedged clay to check for air bubbles.	Properly prepared clay is a basic requirement for successful throwing. Sellers, Throwing on the Potter's Wheel.
Infer a relationship between the pressure applied by the hands to the clay body and the shape of the clay walls.	Divide a wedged lump of clay into six softball-size balls; practice centering, opening, and raising techniques until a uniform thin cylinder 15 cm in height is thrown.	The potter must control the clay, rather than the clay the potter. Speight, Hands in Clay, Chapter 9.
	RELIEF SCULPTURE	
The student shall:	Have the student:	
Gain an understanding of the subtractive method of sculpture as it applies to relief ceramic forms.	Discuss how carving is referred to as a direct or subtractive method.	
	View visuals of two types of relief sculpture, bas relief (low relief) and alto or haut relief (high relief); discuss and compare how in low relief volumes are raised slightly against the background, but in high relief the volumes are almost in the round and attached to a fixed background.	Relief sculpture projects raised volume from a background and should be viewed from the front.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Observe and discuss how three-dimensional objects absorb and reflect light, noting highlights and shadows and all the in-between gradations of gray. The holes and indentions in objects usually receive less light and therefore are darker in value.	Sculpture in relief reflects and absorbs light, which emphasizes the actual forms and depth of the composition. Sculpture in the round projects volume into space and can be viewed from all sides.
Demonstrate skill in the subtractive method of sculpting.	Carve in leather-hard clay two relief sculptures, one low and one high, using drawings from a sketchbook as resource material. After drying and firing, stain the clay with a thin solution of turpentine and oil colours. Compare the results of the two types of relief sculpture.	Speight, Hands in Clay, Chapter 8. Artists: Alvin Pauls (M), Mary Sprague (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
The student shall: Observe how various processes cause the properties of ceramic objects (such as form, colour, or texture) to change, identify the changes, and describe them.	THE NATURE OF CLAY Have the student: Explain the change in form and composition that takes place in a ceramic object as it undergoes processing: - greenware (unfired clay objects) - bisque ware, biscuit (unglazed clay objects that have been fired once) - glazed ware (bisque that has been glazed and fired) (See Firing Techniques, end of unit.) Discuss the kind of change that occurs when properties of clay are modified or altered by: - adding an oxide such as cobalt or iron (changes the colour) - blending different colours of clay together (achieves a new colour) - adding materials that will burn out in the firing such as coffee grounds, sawdust, cereal, or popcorn (produces a porous clay body) - adding ingredients that will not burn out such as sand, grog, metal shavings, or stone (creates different clay textures)	Property changes occur when additions are made to the clay body: - The addition of water changes form. - The addition of heat changes form. - The addition of oxides or coloured clays changes colour. - The addition of grog or sand changes texture. Reigger, Primitive Pottery.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	HAND-BUILDING	
The student shall:	Have the student:	
Demonstrate skill in creating open and closed, functional and non-functional forms.	Discuss the concepts of open and closed form and of functional and non-functional objects.	Three-dimensional forms can be opened or closed, functional or non-functional. Speight, Hands in Clay, pp. 168-184.
	Manipulate solid clay masses to create various three-dimensional forms; alter these solid forms by opening them using the pinch technique.	
Demonstrate skill in using various techniques of hand-building.	Construct and join two pinch pots to form a sphere; slap and/or paddle the form until smooth. After the piece is firm, a hole can be carved in the form to allow air to circulate. A neck, a handle, or a coil base can be added. Join several small pots constructed by the pinch or coil method to make a multiple pot construction.	See Grade 7 Section on Hand-Building.
	Work with slabs using other construction techniques (including drape and hammock methods) to make free-form sculpture or pots.	Slabs of clay may be draped into concave molds or over convex ones and left to dry in those shapes, or formed by suspension in a burlap "hammock."

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Demonstrate skill in using a variety of methods for decorating the surface of ceramic objects.	Explore surface decoration on constructed forms by burnishing, inlaying coloured clays, re-arranging the sequence and pattern of the coloured clays, and adding oxides to clay bodies. (See Firing Techniques, end of unit.)	Colour and texture can be used to decorate the surface of ceramic objects.
Perceive the sensory and expressive properties found in 3-D form and respond to these.	Observe and identify colour and texture in 3-D form; describe the expressive qualities; i.e., pinched forms convey feelings and moods.	Colour and texture, properties of objects, have physical presence and can be seen with the eyes; they also have emotive or expressive presence and can be experienced emotionally.
	Discuss the relationship of colour and texture to a clay form; determine whether the colour and texture enhances the form.	Colour and texture should be compatible with form. Artist: Joe Fafard (C)
	WHEEL-THROWING	
The student shall:	Have the student:	
Refine technical skills in creating wheel-thrown forms.	Practice throwing cylinder forms.	The cylinder is basic to all thrown forms.
	Explore different methods of finishing the top and the bottom of ceramic forms.	Sellers, Throwing on the Potter's Wheel.
Acquire an understanding of the historical development of the potter's wheel and the contribution it made to various cultures.	Discuss how the potter's wheel has influenced cultures throughout history.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	RELIEF SCULPTURE	
The student shall:	Have the student:	
Observe and identify culturally significant uses of primitive and modern masks.	View reproductions of masks and discuss three basic functions of masks through the ages: to disguise identity, to transform man into a spirit person or creature, and to protect against harm.	Features can be altered (distorted) to emphasize their purpose or function.
Gain an understanding of the additive method of sculpture.	Discuss how 3-D form can be built up using a modelling technique.	
Demonstrate perceptual awareness of functional and decorative design.	Model a mask, and use decoration to emphasize one of the basic purposes of masks: disguise, transformation, or protection.	Symmetrical balance can be seen in both human bodies and manufactured forms. 3-D form can be functional and decorative. Film "The Loon's Necklace," National Film Board. Speight, Hands in Clay, Chapter 8. Artist: Don Proch (M)
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OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
The student shall: Demonstrate skill in using clay in different stages.	THE NATURE OF CLAY Have the student: Make use of clay in different stages: Plastic state (hand-building, wheel-throwing) Decorate by: - pressing or pinching using the fingers - stamping with found objects - scratching (comb, scraper) - modelling or applying appliqué (coils, clay paste) Leather-hard state Decorate by: - incising (carving) - piercing (cutting through) - excising (carving away the background) - applying oxide washes, slips, engobes - scratching through an oxide wash, slip, or engobe, so that the colour of the underlying clay body shows through (scraffito) - inlaying engobe decoration into a carving (mishima) - combining or feathering two or more coloured slips to create a marbled effect (slip trailing)	Speight, Hands in Clay, Chapter 10. In its plastic state, clay can be manipulated and retains impressions left by hands or tools. In leather-hard, dry and bisque states, clay can be further modified through decorative techniques. Sapiro, Clay: Handbuilding, Chapter 7.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Dry state/bisque state Decorate by: - engobes or oxide washes - wax resists - stencils - underglaze and underglaze pencils	
	Liquid state (casting liquid clay into hand-made molds)	In its liquid state, clay can be poured into any mold, and retains this shape when dry. Students should be encouraged to make their own molds rather than using the limited number of commercial molds.
	Make slurry or slip to be used for joining.	Nigrosh, Claywork: Form and Idea in Ceramic Design, Chapter 12.
	Recycle clay, observing the various stages that it passes through: plastic--leather-hard--dry-wet--plastic.	
	HAND-BUILDING	
The student shall:	Have the student:	
Perceive the visual and tactile properties in natural and man-made forms.	View and handle a variety of objects which nature has developed to contain seeds, nuts, fruits, and vegetables.	Form, texture, and weight are properties of natural and man-made forms which may be experienced through the senses, through vision and touch for example.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Demonstrate an understanding of the relationship between form and function in natural and man-made forms.	Compare the shape of a container to the object it is meant to hold; discuss the ways in which its form suits its function.	An object's function usually determines structure.
Observe and describe variables, such as size and shape, that affect the strength of a structure.	Discuss the concept of size in ceramic works. (Infer that the size of any ceramic object is relative to the thickness and strength of its walls.)	The force a structure can withstand is directly related to its design (size and shape). Sapiro, Clay: Handbuilding. Speight, Hands in Clay, Chapter 7. Fearing, The Creative Eye, Vol. 1, Chapter V.
Demonstrate skill in constructing hand-built functional forms.	Construct various hand-built forms that will act as containers--cylinders, open bowls, and/or open and closed pinch pots. (See Firing Techniques, end of unit.) Exhibit finished works, placing in them the objects they were meant to hold. Determine whether the finished piece is successful (referring to the relationship of its form to its function).	
Infer that objects lose in aesthetic appeal if their physical weight is not the same as their visual weight.	Observe and compare the actual weight of an object with its visual weight.	If a ceramic object feels heavier than its appearance leads the viewer to expect, its actual weight may be heavier than its

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		visual (apparent) weight because walls and/or base are thicker than they need to be.
	Observe and compare various forms. Squat forms appear to be immobile and heavy, while tall, narrow forms appear to have upward movement and light weight. A form with its greatest width at the top appears to be light, at the bottom to be heavy. (An object with its greatest width in the mid-section has a neutral appearance.)	Volume and proportion of an object can exert control over its visual weight.
	Discuss the 3:1 ratio in ceramic objects; that is, a cylindrical piece will often have more interest if its height is 3 or more times its width.	
	WHEEL-THROWING	
The student shall:	Have the student:	
Evaluate wheel-thrown ceramic forms in terms of the relationship of the parts to the whole; i.e., foot, body, neck, mouth.	Use paper to draw or cut out a series of form variations from a basic shape, changing the relationship of the feet, neck, mouth, and body; make critical judgments about the forms using an art vocabulary.	Visual unity in a ceramic composition relates parts to a whole and results in a visual statement.
Experiment with enhancing a basic volume of a thrown form by adding a foot, neck, handle, spout, etc.	Do research sketches on specific shapes or forms taken from books or magazines; e.g., variations on the cylinder could be sketched.	Proportion is correct when size and shape are visually pleasing.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Use the sketches done in the above exercises to construct on the wheel basic volumes to which functional and non-functional attachments can be added.	Sellers, Throwing on the Potter's Wheel. Artists: Robert Archambeau (M), Robin Ripp (M), Vivian Templeton (M), Diane Searle (M)
Demonstrate greater ability to evolve forms on the wheel including cylinders, spheres, bowls, and plates.	Continue this exercise on the wheel, working with cylinders, spheres, bowls, and plates; evaluate whether or not a utilitarian object fulfills its intended function.	Form follows function.
	RELIEF SCULPTURE	
The student shall:	Have the student:	
Understand the visual relationship between mask design and the human head.	Study the shape of his or her head, observing how symmetrical balance is achieved through placement of facial features. Observe and discuss facial features and their function within a mask.	Speight, Hands in Clay, Chapter 10.
Exhibit visual awareness and sensitivity to texture and the use of colour to interpret mood.	Draw a portrait or use one previously done, and then translate it into a mask through use of decorative pattern, texture, and colour.	Colour and texture have both sensory and expressive qualities. Artists: Constantin Brancusi, Leo Mol (M)

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Infer a relationship between the sensory and the expressive use of colour.	Drape a slab of clay over an oval, rounded mold made of found clay or plaster; build up the form and facial plane by adding mass (lumps of clay); dry slowly and then fire (see Firing Techniques, end of unit). Discuss how various colours affect our emotions. Complete the mask with an appropriate colour; use underglaze and refire or use tempera on the bisque surface.	

CLAY: KINDS AND PREPARATION

KINDS OF CLAY

Local: dug from lake beds, cellars, gravel pits, caves; should be tested for plasticity. If the clay has impurities or too much sand, it will not hold its shape. It can be screened for sand and gravel and washed for vegetable matter.

Refined: can be ordered from clay plants or brick works.

Commercially-prepared: usually imported from other provinces or from the U.S.A. in dry powder form, moist form (plugged), and self-hardening form. Clay can be purchased from pottery and ceramic stores throughout the province.

PROCEDURE FOR PREPARING CLAY

- Grind the dry clay.
- Sift the clay through a piece of window screen to remove foreign objects.
- Mix dry clay and sand by hand in a tub or bucket.
- Add water to clay-sand mixture to produce heavy slip.
- Pour slip over large, rectangular, plaster bats for storage.

PINCH POT CONSTRUCTION

- opening the center
- spreading the floor and forming walls
- ribbing the inside
- reinforcing the rim
- stroking
- reworking the rim
- thinning
- finishing the rim
- thinning the bottom
- finishing the outside

METHODS OF MAKING CLAY SLABS

Clay slabs can be made by:

- pounding the clay flat by hand
- pulling wire through clay (wire stretched between two upright sticks cut with a series of equidistant notches). This method is preferred by Far Eastern potters.
- the "pizza method" (slamming clay down away from body)

EGYPTIAN PASTE

Egyptian paste is a combination of glaze and clay and can be used to make ceramic jewelry.

RECIPES

Rhode's Egyptian Paste and Bentonite

Feldspar	40 parts
Flint	20 "
Kaolin	15 "
Ball Clay	5 "
Sodium Bicarbonate	6 "
Soda Ash	6 "
Whiting	5 "
Fine White Sand	8 "
	105 parts
Add Bentonite	3 "
	108 parts

Fire to Cone 08

Ceramics Monthly's Egyptian Paste

Feldspar	39 parts
Flint	39 "
Ball Clay	12 "
Soda Ash	6 "
Sodium Bicarbonate	6 "
	102 parts

Fire to Cone 09

Suggested Colourants

#1 3 parts cobalt (blue)
#2 3 parts copper (green)
#3 2 parts cobalt, 1 CuO (turquoise)
#4 4 parts manganese carbonate (purple)

Procedure

Mix dry ingredients and sift, using an ordinary household sieve or a number 30 mesh.

Mix again and add water to as much of the material as is going to be used within an hour.

Form beads by rolling. Beads should not touch each other or anything else during drying and firing.

For firing, make a pyramidal tree-shape (nails are not as good but can be used). Let the tree dry before firing. Put the beads at the very outer ends of the wire and fire to about cone 06 or 07, about two hours in a small kiln.

The beads should look glassy or shiny in the kiln. They can be fired wet or dry. The wetter they are, the shinier and more brittle they become.

MAKING YOUR OWN CERAMIC TOOLS

Collect and/or construct tools for working with clay.

A. For texturing and scoring clay:

- forks, knives, old saw blades, combs, wooden paddles, popsicle sticks, meat skewers, sturdy plastic (cut to a tooth edge), clay stamps

B. For hollowing, cutting and scraping clay:

- stiff wire attached to a wooden dowel (used for cutting coils of clay)
- a bobby pin or paper clip firmly attached to a thin wood dowel (hollowing)
- a thin line--like fishline, brasswire, or a guitar string--with a spool tied to each end so that it is easier to hold and find (used for cutting slices of clay)
- hack saw blade (scraping)
- wooden ribs, smooth or with teeth (scraping)
- flexible metal scraper, smooth or textured (scraping)

C. For rolling out clay:

- thick cardboard tubes filled with plaster of Paris; 2" wooden dowelling
- wooden rolling pins

D. For drying clay:

- a small bat made by pouring plaster of Paris into a foil cake pan about 5 cm thick
- a large bat, made by using boards to frame the desired slab, and plastic sheeting to line the sides and bottom; once the plaster of Paris poured into the cavity has set, the bat can be turned upside down and the plastic removed to expose the smooth surface
- cotton or canvas cover for the bat to prevent plaster chips from getting into the clay (such impurities may cause the clay to explode when fired)

E. For smoothing clay:

- a paddle made from a board approximately 4" x 6" with round edges to prevent imprint (a handle will make it easier to hold)
- dowel and sponge tools
- sponge "brushes"
- chamois smoothers

FIRING TECHNIQUES

ELECTRIC KILN

Bisque Firing (First Firing)

A. Be sure pieces are thoroughly dry. If they are damp, they may crack or explode during the firing process.

1. Test clay for dryness. If dry, it is close to room temperature; if cold, it is still damp.
2. Handle with extreme care when dry; thin edges crack easily. Rough edges may be smoothed with a damp sponge or cloth before firing.

B. For the first, or "bisque" firing, pieces can be stacked on top of each other. Place larger, heavier things on the bottom.

1. Place pieces in kiln so that they do not touch the electric coils on the sides.
2. Provide for air circulation in and around each piece.
3. Avoid firing a half-loaded kiln and wasting electricity and time.

C. Prepare pyrometric cones to measure the heat of the kiln.

1. Choose cones 08 and 07, which melt at 1742°F (936°C) and 1814°F (976°C) respectively.
2. Tilt cones at an 80° angle in a lump of clay, with the cone which melts first on the right (the 08, in this case); let dry.
3. Place cones on the kiln shelf where they can be easily seen through the peephole. Sometimes the lump of clay must be placed on a post to make it high enough. The 08 cone will fall apart first, as a warning that firing is near completion. When the 07 cone slumps, the firing has been completed, and the kiln can be turned off.

D. Fire the kiln.

1. Turn the kiln on LOW for two hours, leaving lid slightly open so that chemical moisture can escape.
2. Close lid and turn to MEDIUM for two hours.
3. Turn to HIGH and continue firing until cone 08 slumps, indicating that proper temperature is nearly reached. Continue firing until cone 07 slumps. Turn all switches off but DO NOT OPEN until next morning or until at least 12 hours have elapsed and kiln is cool.

Glaze Preparation and Firing

A. Mix glaze thickly enough so that it coats a spoon, like a thick tempera that can be painted on with a brush.

1. Cover a piece completely on inside, top, and sides, but NOT BOTTOM, brushing glaze on in long even strokes. The glaze coat should "furr" when scratched with the fingernail.

2. NEVER PUT GLAZE ON THE BOTTOM OF A PIECE. Use a damp sponge or a paring knife to scrape all traces of glaze off the bottom and even 1/8 inch up the sides to assure no glaze will drip onto shelf.

B. Prepare the kiln.

1. Cover the top of each shelf and the kiln bottom with kiln wash which will be a protection in case the glaze drips. Mix the kiln wash to the consistency of thick cream and brush onto the surfaces so that they are well covered and will "furr" when scratched with a fingernail.

C. Stack the kiln for glaze firing.

1. Glazed objects MUST NOT touch each other. When the glaze matures or reaches the desired temperature, it becomes melted glass. If objects touch, they will be permanently joined.
2. If desired, objects can be placed on small lumps of clay or tripods.
3. Place 04, 05, and 06 cones in tilted position where they can be seen through the peephole, with 06 at right, and follow the same procedure as for bisque firing. With the three cones it will be necessary to watch the kiln more closely. This is important since glazes melt at specific temperatures.

BUILDING YOUR OWN KILN

These kilns are to be used outside only.

Sawdust Kiln

Pierce a clean oil drum and metal lid with enough holes to allow air to circulate inside the container (all directions).

Place the metal container on bricks, so that some air can circulate from the bottom during the firing.

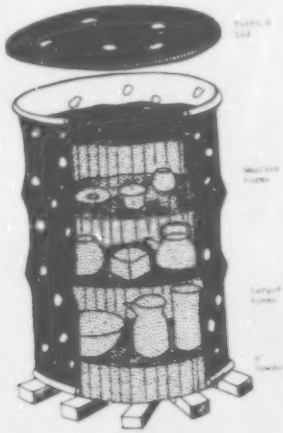
Place approximately 15 cm of sawdust in the bottom of the chamber and then place the first layer of completely dry ware upon this (largest pieces on the bottom). Plenty of room must be allotted to each piece so that it can be surrounded by sufficient fuel. Be careful not to place it too close to the perimeter. A second layer of sawdust is placed on top of and around the ware with a clearance depth of at least 8 cm.

Repeat the procedure with the next layer of ware. After the final layer (the lightest ware) has been installed, the chamber is topped off with sawdust to a depth of at least 15 cm.

If the kiln is lit in the morning, the sawdust will burn away during the day, revealing the work. It is necessary to prevent this by adding more sawdust when necessary. At the end of the day, the container is topped off and the lid is fitted. Over night, the kiln is allowed to burn out.

When the kiln is cool, it may be emptied. Do not attempt to fish out pots while they are still hot as this can cause them to crack.

Observe and discuss effects of the firing on the object in terms of vitrification and colour.



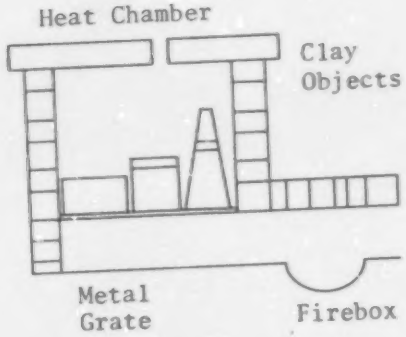
Outdoor Kiln

Using several layers of brick (or one layer of insulating firebrick), construct a firebox and a heat chamber. A sturdy metal grate should be placed over the firebox.

Stack completely dry ware on the grate (sturdy objects first and more fragile objects on top).

Charcoal briquettes are recommended as fuel. The temperature can be increased by forcing air (with bellows, fan or vacuum cleaner with a reverse switch) over the briquettes.

Use a generous amount of fuel. Keep the heat chamber as compact as possible to minimize heat loss.



GLOSSARY OF TERMS

Bat: A plaster slab on which overly wet clay can be spread to dry. The plaster absorbs the excess moisture from the clay.

Bisque: Clay that has been fired. The clay particles melt during the firing and fuse later while cooling. Bisqued clay will not dissolve and is strong enough for handling during finishing.

Burnishing: Smoothing or refining the clay surface by rubbing it with a smooth object such as a stone.

Bore-Hard: Clay in a dry but unfired state.

Centering, Opening, and Raising: The basic steps in wheel throwing. Centering forces the clay into a semi-spherical lump whose edges are equidistant from the center. Opening the center creates the interior cavity, and raising is the process of pulling up the clay into the walls.

Clay: Fine earth particles composed mainly of alumina and silica.

Coil: Long rounded strips of clay used in the construction of pottery forms and figures.

Cone: (Pyrometric Cones) - Small ceramic wedge-shaped object that melts at a specific temperature, used to indicate temperature inside the kiln during firing.

Earthenware: A soft, red, low-firing clay. High temperature firing will cause warping or distortion of its form.

Engobe: A coating of coloured clay used in decorating the surface of clay objects.

Excise: To carve away the background leaving a relief pattern.

Fire Clay: A coarse, porous, high-firing, low-shrinking clay, generally used in making firebrick. It is also suitable for use in classrooms.

Firing: Heating of greenware, usually done in kilns heated by electricity, wood, gas, or fuel oils. The temperature must be capable of attaining and exceeding 2000^{o}C.

Glaze: Coating of glass fused to the surface of clay objects. Raw glaze applied by brushing, spraying, or dipping turns into a glassy surface when fired.

Greenware: Clay objects in an unfired state.

Grog: Ground-up, fired clay. This powder added to plastic clay provides added strength to large pieces. It reduces shrinkage in drying as well as warping in firing. It also alters the texture of the surface.

Hand-Building:	Building pottery by hand, not by casting or throwing it on a wheel.
High Relief:	Modelled figures raised substantially above the surface to which they are attached.
Incise:	To cut or scratch lines into greenware.
Joining:	See Welding.
Kiln:	Furnace-like compartment into which clay objects are placed for firing. Kilns can be heated by electricity or various other fuels to temperatures in excess of 2000°C.
Kiln Wash:	A powdered mixture consisting of flint and kaolin mixed with water. Kiln wash is brushed onto kiln shelves and surfaces for protection against running glazes.
Leather-Hard:	Clay in a hard, damp state that is firm enough to hold its shape.
Oxide:	A chemical which is used as a colouring agent (e.g., iron oxide).
Oxide Wash:	Oxide dissolved in water, to be brushed on the ceramic surface.

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Paddle:	To slap the clay with a flat piece of wood in order to shape it.
Pinch Pot:	Pottery formed through pinching a ball of clay.
Plastic (Plasticity):	Clay that is of a consistency that can be shaped, or modelled. It will range between too wet (sticky) and too dry (cracking) when manipulated.
Reclaiming:	To make clay plastic again by breaking it down and moistening it.
Pugged:	Clay mechanically mixed in a pug mill to an even consistency.
Score:	To scratch the clay surface where other parts will be attached.
Scraffito:	Decoration created before firing by scratching through glaze or slip to expose the contrasting colour of the clay.
Shrinking:	The contraction of clay during drying and firing. Shrinkage varies 5-20% depending on the composition of the clay.
Slab:	Flat forms of clay produced by rolling, pressing, or cutting.
Slip (Slurry):	Clay dissolved in water.

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HISTORICAL CHART

Neolithic (10,000 B. C.)

- Simple hand-made slab and pressmold forms
- Sun-dried and open-fired
- Growth of an agrarian civilization produced demand for storage containers and cooking utensils

Egyptian - Old Kingdom (5000 B. C.)

- Simple and rugged coil and other hand-made forms
- Some tiny sculpture

Egyptian - Middle Kingdom (2000 B. C.)

- Hand- and wheel-made pottery
- Turquoise-coloured glaze developed
- Functional and non-functional objects (bricks for houses, bowls, figurines, jewellery, and writing tablets)
- Religious symbols carved in clay

Creten (1500 B. C.)

- Palace style: large, robust brilliantly coloured jars and sea animals in sweeping designs (Kamares ware)

Assyrian (1000 B. C.)

- Brick friezes of winged animals and figures related to experiences

Greece (1000 B. C. to 500 B. C.)

- Geometric design
- Dipylon style: rich brown glaze on light tan clay
- Motifs for decoration: human and horse figures
- Fancois vase; red clay with white pearl and black glazes; human and animal motifs; black and red clay
- Vases used for measures, storage of food, religious ceremonies, and prizes

Babylonia (500 B. C.)

- Friezes in relief made of conventionalized animal and human figures

Roman (500 B. C.)

- Red clay earthenware with decoration stamped in relief on the outside by means of molds
- Terra sigillata glaze used
- Glass blowing invented

Chinese (200 B. C. to 200 A. D.)

- The most resourceful era, although pottery forms date back to 5000 B. C.
- Porcelain developed, made of white clay called kaolin mixed with feldspar, silicote of alumina, and potash
- Pottery figures buried with nobles at the time of their death (replaced burying wives, animals, etc. with the dead)
- Han Dynasty (200 A. D.): simple, sturdy shapes covered with greenish glaze
- T'ang Dynasty (600 A. D.): more colours added and figurines produced of people, animals, birds, etc. Conventional glazes, with brown, yellow, and green glazes used freely
- Sung Dynasty (900 A. D. to 1200 A. D.); probably the greatest era in the history of ceramics; celadon glazes developed; most were monochromatic

- Flower and leaf motifs
- Designs done in low relief
- Potter's wheel first used
- Ming Dynasty (1300 A. D. to 1600 A. D.); many empirical kilns established in 1300
- Pottery largely decorated with polychrome glazes and pictorial designs

Italian (1300)

- Majolica (white opaque enamelware) developed in Florence
- Finest pieces of majolica ware were large plaques and plates with pictures on them

French (1400)

- Refinement on Majolica known as Faience (tin-enamelled ware) developed
- French potter Palisay discovered ways of making coloured lead glazes

Dutch and Northern France

- Dutch East India Company brought Chinese porcelain to Holland in the late 1600s
- Delft pottery developed

German

- Johann Bottger developed hard paste porcelain similar to Chinese porcelain (1709)
- Modelled porcelain figures known as "Dresden China" produced in Meissen factory
- Salt-glazed stoneware developed

English

- Staffordshire and Wedgewood ware produced
- Slipware method of glazing devised

American

- Incas: realistic pottery and clay sculpture of portrait heads produced, some made in molds
- Aztecs (1370 A. D.): pottery considered inferior to Mayan; hand-made by coil or modelling and elastic enough to produce impervious surface; rich, warm colours of black and orange, red, brown, and white
- Pueblos: decorated with symbolic motif designs
- Zuni: used red and white slip;
- Hopi: used red, brown, and black slip;
- Woodland: textured with cord-wrapped paddles
- Mississippi: characterized by angular shoulders

African

- Hand-building methods similar to the Indians
- Large, bulbous, crude shapes made in coil method and open-fired

Developed World (1800 to Present)

- After Industrial Revolution: pottery factories, individual artistry lost, mass production
- 1800s: attempt to re-create pre-industrial times, elevation of craft
- 1900s: ceramics as an art medium
- Influence of English potters: Bernard Leach, born in Cornwall, teacher, potter, unification of Oriental and Western pottery; Michael Cardew, utilitarian, "folk pottery"
- 1919: Bauhaus School, Germany, influenced "form follows function" philosophy
- Crafts people began working with factories in experimental studios

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FIBRE ARTS

Since ancient times, there have been fibre works made for practical purposes, for home decoration, or for clothing. Traditionally, these have been as expressive and unique as each craftsperson's individuality.

In the century past, the rise of manufactured goods, the production of goods by machine rather than by hand, threatened to eliminate many fibre crafts. In recent years, however, they have not only recovered but have gained a legitimate place in the art scene. Their renaissance is due in part to the benefits of factory production. Since designers/craftspersons no longer need to turn out necessities, they are free to give attention to work that uniquely expresses their creative talents. Some pieces incorporate structural supports or stuffing to produce three-dimensional or sculptural works. Concurrent with this rise of new approaches, old techniques have revived. Ancient techniques--for example, quilting--are undergoing a rich revival, being redefined to provide tactile experience for creative expression, emphasizing unique, rather than already formulated designs. Contemporary fibre artists sometimes explore old methods to combine several techniques in one piece.

Since textiles are mass produced in industrialized society, most students never see how raw materials are made into yarn and cloth. Working in the fibre arts offers them the opportunity to become aware of these processes. It also gives them the opportunity to develop an appreciation of good craftsmanship and design, and the ability to select and relate colours, shapes, lines, and textures in designs, clothing, and furnishings. An appreciation of good design requires appreciation of the materials used therein. Study of the fibre arts, which are rich and varied, provides opportunities for developing both.

Included in this fibre arts section of the curriculum are units on weaving, dyeing (tie and dye, batik, screen printing), and creative sewing techniques (stitchery, quilting and patchwork, soft sculpture). The course design allows for sequential progression from grade 7 to 9, the assumption being that over time students improve their ability to perform more complex operations as well as their judgment regarding elements and principles of design. Various concepts will be explored in order to help students use design principles in solving problems as well as in expressing ideas.

In order to teach many of the techniques outlined, teachers will need to acquire some background in fibre arts through research and practice. The recommended resource for this unit, Virginia Timmons' Art Materials, Techniques and Ideas: A Resource Book for Teachers (Worcester, Mass.: Davis, 1974) should be helpful in this regard. The study of fibre arts can be related to social studies, insofar as it provides an opportunity for a sociological investigation of crafts in Canada.

Students can be encouraged to practice fibre art at home since tools and materials are relatively simple and inexpensive.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	WEAVING	
The student shall:	Have the student:	
Become aware of the development of particular styles of North American Indian weaving and of the materials used therein.	View examples of North American Indian weaving and discuss the development of particular styles in relation to life-style and environment (Salish, Navajo, Woodlands; and finger weaving).	Certain kinds of weaving developments in North America were a response to natural materials found in the immediate environment. Rainey, Weaving Without A Loom.
Become aware of the fundamentals in weaving: warp, weft, and the basic weaving process.	Experiment with paper weaving (to learn the basic weaves and the technical terms connected with the art of weaving): - vary weaving over-under pattern of weft strips - cut warp and/or weft strips in curving or angular strips - vary the width of the warp strips - cut shapes out of warp strips - paste on contrasting colours or materials	Weaving is a method of interlacing horizontal fibres called weft threads with vertical threads called warp threads. Wilson, Weaving is Fun. Different weaving techniques result in variations of surface texture and pattern. Fearing, The Creative Eye, Teacher's Guide, p. 55.
Understand the process of weaving and perform it.	Experiment with weaving wool/yarn into open-weave fabrics such as scrim, cotton-mesh or burlap. These fabrics can be drawn onto with crayons to outline areas of colour. The yarn may be woven through in any direction and in any combination of under-over pattern.	The texture of weave is built up of linear elements (warp and weft threads) which create rhythmic patterns of shape, line, and colour. Krevitsky and Erikson, Shaped Weaving.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Develop a concern for planned colour selection.	Select the yarn with a careful regard for colour; limit colours in some way; e.g., select only warm, cool, or harmonic colours.	Harmony can be achieved through the use of colour. Lauer, Design Basics, Chapter 11.
Demonstrate the ability to make a simple frame loom.	Make a simple frame loom, from cardboard notched at the top and bottom, or from wood with nails hammered in at the top and bottom. (Notches or nails hold the warp threads.) The frame should be approximately 20 cm x 13 cm (8" x 5"). (See Grade 8.)	
	Make the warp. The warp must be chosen with care because it contributes to the design, sometimes showing and sometimes hidden by the weft. Simple linear patterns can be woven using the over and under process.	Artists: Willene Cox (M), Elaine Rounds (M)
	Experiment with yarns of varied texture, weight, and colour on a simple loom.	Materials have certain qualities, such as variation in weights of yarn, flexibility of fibres, texture, and colour.
Become familiar with different weaving techniques.	Practice weaving techniques (e.g., tabby, basket, twill, tapestry, knotting, and wrapping); practice finishing-off techniques.	
	Make a small woven sampler of the above weaving techniques.	

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OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	CREATIVE SEWING TECHNIQUES	
	Stitchery	
The student shall:	Have the student:	
Understand the development of stitchery and its traditional and contemporary applications.	Discuss the development of stitchery, both decorative and functional, in different cultures.	Stitchery in its utilitarian form has always been used to sew pieces of fabric together. In its decorative form, it has been used to satisfy the appetite for adornment in all cultures; in contemporary culture, it continues to be used to enrich and decorate surfaces.
Become aware of the qualities and potential of machine stitchery as compared to hand stitchery.	Compare hand-sewn stitchery to that produced on a machine.	Sewing machines, originally used for functional sewing, can now also make a variety of decorative stitches.
Become aware of stitchery as a valid art form.	View and discuss examples of contemporary stitchery as applied design.	Stitchery as a form of artistic expression may be decorative or functional.
Develop creative and technical skills in stitchery.	Practice using different sized needles and weight of yarn to make simple stitches.	
	Use a variety of simple stitches (chain, running, couching, etc.) to interpret an idea or theme expressively.	The line produced by stitches can be varied by changing the size or length of the stitches or the thickness of the thread or yarn.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Become familiar with different fabrics and yarns that may be used for stitchery. Use a variety of yarns and fabrics.	Varied effects can be created by different textural materials.
	Incorporate appropriate found objects with stitchery techniques.	Fearing, The Creative Eye, Teacher's Guide, p. 53. Marein, Stitchery, Needlepoint, Applique, and Patchwork: A Complete Guide.
	Choose the appropriate materials and tools (needles) to make a piece of personal decoration; e.g., a patch, a collar, or soft jewelry.	Artists: Joyce Wieland (C), Marsha Wineman (M)
	DYEING	
	Tie and Dye	
The student shall:	Have the student:	
Become aware of the traditional use of tie and dye technique and its contemporary revival.	View and compare examples of tie and dye as used in other cultures; e.g., "plangi" in India; "tritik" in Africa; "ikat" in Malaysia.	In "plangi," the damp cloth is placed on a bed of nails hammered into a board in a pattern, and the points tied. Then it is dyed. In "tritik," the cloth is sewn with a thread which is run through in a pattern and then drawn up until the fabric is packed together in pleats or folds. Then it is dyed.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		In "ikat," the yarn is tied and dyed before it is woven.
	View and discuss contemporary uses of tie and dye.	Tie and dye is a resist process of dyeing fabric. The pattern is obtained by tying the cloth so tightly in certain areas that the dye is resisted; that is, it does not penetrate the fibre in those areas.
		Fibre Arts, January/February, 1978.
		Maile, Tie and Dye.
Understand the resist process in tie and dye, and develop skill in using it.	Experiment with different tie and dye techniques, using varied resist methods: - tie with rubber bands, waxed string, tape - tie in small objects such as marbles, stones, etc. - stitch (tritik method) - knot - fold	Rhythm, line, shape, and texture can be created through the tie and dye process.
Apply colour theory in blending several dye baths.	Experiment with retying and redyeing fabric.	Multicoloured patterns are achieved by retying and redyeing.
	Work from light to dark in dyeing successive colours.	Each succeeding colour will be tinted by the colour already in the cloth.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
396	Observe and discuss the resultant non-representational designs in relation to line, shapes, colour, and texture.	397

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	WEAVING	
The student shall:	Have the student:	
Recognize that weaving is a natural process found in the environment, as well as one that is hand- or machine-crafted.	Search for woven structures in the environment; compare similarities and differences between human weaving and bird and insect weaving.	Weaving occurs in the natural and the social environment.
	Examine and discuss hand-made woven articles. (This could be done in conjunction with a visit to a weaver's studio, the Craft Guild of Manitoba, or a craft gift shop.)	Refer to Grade 7 Weaving.
Gain an understanding of how a simple frame loom is set up and develop skills required to weave a length of fabric that can be used in a functional way.	Construct a simple frame loom (approximately 20" x 20" or larger) using 2" x 1" wood, driving in nails (2" finishing) at approximately 1/4" intervals on both short ends (wooden boxes or crates, picture frames, or fabric stretchers could also be used).	A sturdily constructed loom is required in order to achieve the tension required for weaving.
	Choose fibres for the warp and weft that will prove serviceable in the finished article whether it be a cushion cover, tote bag, or scarf.	Weaving can be used for functional purposes. Fibres chosen for weaving must be suitable for their functional use.
	Weave the design with even tension and neat transition of colour or change of fibre.	Artists: Elaine Rounds (M), Willene Cox (M)
	Use line and colour to achieve an harmonious composition.	Repetition of line and colour can be used to achieve rhythm and unity.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	CREATIVE SEWING TECHNIQUES Patchwork and Quilting	
The student shall:	Have the student:	
Develop an understanding of traditional and contemporary patchwork and quilting.	View examples of traditional and contemporary patchwork and quilting and discuss the development of these in relation to different cultures.	Patchwork, the joining of individual pieces of fabric to each other, developed out of necessity and has become a rich needle art, whose rhythmic patterns express meaning in shapes and colours.
	Discuss the use of quilting to enhance the surface of the fabric by giving it a sculptured quality.	Quilting, the use of the running stitch to bond padding to a decorative fabric, developed to fulfill requirements for warm garments and coverings and to provide added comfort to furnishings. Brown, Creative Quilting. Artist: Marsha Wineman (M)
Understand the processes of patchwork and quilting, develop skills in them, and apply them to creative design.	Make a design for a patchwork wallpiece.	
	Select, prepare, and arrange materials for the patchwork design.	Shapes can be organic or geometric, can interlock or overlap, and can be used to create patterns.
	Join individual pieces of fabric together by stitching.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Lay the resulting pieced cloth over a length of batting which is cut to the same size and backed by another piece of cloth; sew through the three layers with a running stitch to quilt the piece.	Lines of stitches in quilting can be used to enhance or emphasize shapes.
	Use various stitches to emphasize or decorate the patchwork shapes.	Decorative stitches (such as the feather stitch) can be used as an added embellishment.
		Historical Reference: Chinese fabrics in the Middle Ages (discovered by the Crusaders); North American fabrics in the Colonial Period
	DYEING	
	Batik	
The student shall:	Have the student:	
Understand the development of traditional batik in other cultures and contemporary batik in the western world.	View examples of traditional batik and discuss them in relation to contemporary use of batik.	In batik, water-resistant materials such as wax are applied to fabric to repel the dyes; coloured patterns of line and shape are created when the fabric is dyed.
Demonstrate the ability to use different batik techniques and to manipulate tools.	Discuss the procedures in batik: - waxing (brushing, stamping, tjanting) - first dye bath using cold water dye (lightest colour first)	Meilach, Contemporary Batik and Tie and Dye. Historical Reference: Indonesian, African, Indian batik; Ukrainian Easter eggs

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	- cold water rinsing - drying - second application of wax - second dye bath - cold water rinsing - removal of wax by ironing (iron between sheets of newspaper or blotting paper)	Artists: Joanne Kelly (M), Judith Evers (M)
Exhibit an understanding of the techniques of batik as applied to fabric design.	Apply melted wax using different tools; e.g., use a tjanting, a brush, found objects, or dip the cloth in wax; observe the results.	Different methods of applying wax to fabric can result in varied effects.
	Make paste resist from flour and water and while it is still warm, brush it on the fabric. (With a paste resist, the dye should be brushed on, not dipped.)	
	Experiment with re-waxing and re-dyeing areas of the fabric.	Multicoloured images can be achieved by re-waxing and re-dyeing.
	Design a length of fabric using the batik methods learned from the above activities.	

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	WEAVING	
The student shall:	Have the student:	
Recognize weaving as decorative as well as functional.	Discuss decorative weaving and functional weaving and their relationship to past and present cultures; compare examples of the two types from different cultures.	Refer to Grade 7 Weaving.
Produce an originally designed, decorative woven hanging.	Produce a decorative piece of weaving. The original design should repeat textures and colours in a rhythmic manner. The previously constructed simple frame loom can be used. (See Grade 7 or 8 Weaving.)	The elements of line, shape, colour, texture, and pattern are basic to all forms of artistic expression.
Use fibres and colours according to the purpose of the weaving.	Incorporate colours and textured fibres into the woven design based on their expressive qualities. Examine and compare weaving in relation to other methods of fibre construction; incorporate these methods with the weaving where appropriate (e.g., knotting fringed edges, wrapping warps, chain-stitching over the warps); relate weaving to basketry and other methods of fibre construction.	The colour and textures of the weaving should be compatible with the purpose of the article.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	CREATIVE SEWING TECHNIQUES Soft Sculpture	
The student shall:	Have the student:	
Become aware of the qualities and potential of constructed cloth forms as a medium for three-dimensional design.	View examples of traditional and contemporary sewn and stuffed shapes.	Stuffed cloth dolls and soft toys are a traditional forerunner of soft sculpture.
Develop the skills required to construct three-dimensional cloth forms.	Make a paper pattern for a soft sculpture; make the shapes generous to compensate for the fact that they will not be flat, but will be curved in a three-dimensional form. (The subject could be a person, an animal, or an abstraction.)	Meilach, Soft Sculpture and Other Soft Art Form. Artist: Claes Oldenburg
	Cut the shapes from fabric that has been tie-dyed, batiked, or printed; fasten the pattern pieces together by hand, with a stapler, or with a sewing machine; turn the pieces right side out, stuff the form with batting, and sew it closed; decorate it with stitchery techniques learned in grades 7 and 8.	
	Compare and contrast the use of fabrics in sculpture to the use of other media and techniques.	The lighthearted, ironic quality unique to soft sculpture is emphasized by the textures and colours of the materials used.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	DYEING	
	Screen Printing	
The student shall:	Have the student:	
Become aware of traditional and contemporary methods of printing with stencil and dye on fabric.	Examine and discuss how various cultures--the Japanese or the Colonial American, for example--made use of stencils in fabric printing.	Screen printing is a contemporary counterpart of stencil printing. It employs the use of a fabric mesh dense enough to hold the stencil and yet open enough to allow the ink to pass through in the non-stencil areas. (See Printmaking unit - Serigraphy.)
Understand why stencil printing is one of the main processes used in industry for decorating fabric.	Research commercial methods of screen printing; visit studios of artists who use screen printing methods. View and discuss examples of silk-screened fabric that have been used in both functional and decorative ways. Experiment with making paper stencils, using a sponge to dab paint in the cut-out spaces.	Fibre Arts, Sept./Oct., 1978. Robinson and Robinson. Exploring Fabric Printing.
Develop skills in designing, preparing a screen for, and printing a length of fabric.	Use organic or geometric shapes to plan a fabric design for a specific purpose; e.g., a wall hanging or a dress length. Prepare the silk screen with the stencil pattern. (See Printmaking unit-Serigraphy.)	The surface design of the fabric should be compatible with the use to which the fabric will be put.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
412	Register the fabric on the table, and the design on the fabric; print a length of fabric using commercial silk-screen dyes or thickened dyes. (Use "Supercel" wall paper paste or sodium alginate to thicken the dyes for printing.)	Screen printing allows for repetition of design. 413

MATERIALS FOR FIBRE ARTS

	CREATIVE SEWING TECHNIQUES Stitchery, Quilting and Patchwork, Soft Sculpture		WEAVING		DYEING Tie-Dye, Batik Screen Printing
Surfaces	fabrics, assorted burlap canvas monk's cloth screening peg board	Looms	paper heavy cardboard wooden frame four harness spool peg board	Fabrics	cotton muslin linen organdy silk burlap
Tools	scissors pinking shears needles embroidery hoops crochet hooks	Warp	string cord yarn telephone wire	Dye	commercial dyes (cold water dyes for batik) waterproof ink tea coffee onion skins berry juices black walnut shells tree bark
Materials	thread string yarn found objects cord cloth beads	Woof or Weft	paper string cord weeds yarn reed rope vine twine jute filler yarn fabric strip binding ribbon hoisery necktie leather lacing shoe string sewing notions	Block-Out	rubber bands string wire plastic ties crayon paraffin beeswax
				Tools	bristle brush ink brush tjanting pan hot plate iron
Products	wall hangings pillows purses scarves quilts place mats	Products	wall hangings bags purses pillows scarves hot pads mats headbands bracelets watchbands belts runners rugs	Products	shirts yard goods wall hangings scarves place mats sheets pillow cases clothing, all kinds

ADDITIONAL TECHNIQUES

FELTING

Felt is made from animal fibres, wool or animal hair, that have been subjected to heat and stress until matted together. The following process may be used to produce felted material:

- Tease the wool.
- Build up layers of wool on a large piece of synthetic material.
- Sprinkle the wool layers with soap powder.
- Roll up the wool and fabric like a jelly roll and secure ends.
- Place the roll in hot water, take out and pound. (This process is repeated until the fibres mat together.)

Knitted or crocheted objects can also be felted. Felted fibres can be moulded around or within shapes.

RECYCLING FABRICS

Collect discarded garments of woven or knitted fabrics. The woven cloth may be cut into strips, the knitted fabric unravelled. These may be recycled as follows:

- Tie and dye whole pieces of unravelled yarn.
- Mix yarns with raw wool using carders.
- Reconstruct the materials, e.g., form or sew together pieces of woolen fabrics and felt.
- Knit, crochet, or weave with unravelled yarn.
- Braid, hook, or crochet strips of fabric into rugs.
- Use strips of fabric for weaving or crocheting.
- Explore other materials that could be recycled and used for fibre art techniques; e.g., telephone wire, old film, magnetic tape.

GLOSSARY OF TERMS

Appliqué: A cutout decoration from one material, sewn, or otherwise applied, to another material.

Batik: A process for creating colour designs on fabric by coating the areas not to be dyed with wax.

Braiding: A strip formed by the interweaving of three or more strands.

Dye: A substance that, dissolved in water, colours cloth and other materials.

Embroidery: The art or process of forming decorative designs to enrich a fabric with needlework.

Felting: A process by which fibres are made to matt together.

Fibre: Filaments twisted together (spun) to form thread or yarn. (Fibres may be vegetable, animal, or synthetic.)

Loom: A frame or machine on which cloth is woven.

Plain Weave: Also called tabby weave. (See below.)

Plaiting: Braiding.

Screen: A device made of fine interwoven threads.

Stencil: A piece of paper or cardboard with designs cut into it.

Tabby: A weaving pattern utilizing the plain weave technique of one over, one under, in which woof and warp are of the same material and weight.

Tapestry: A decorative fabric in which coloured threads and yarns are woven to produce a design, often pictorial, and in which each area of colour is woven separately.

Tension: Condition of stretching.

Textiles: Fabric, woven cloth.

Thread: Twisted fibres of any kind.

Tie-dye: The process of tying a fabric with string or rubber bands and dipping it into dye.

Tjanting: A container for holding hot wax to be used in drawing lines in the batik process.

Unravel: To pull apart.

Warp: A series of strings, yarns, or other suitable materials, stretched taut, that hold the woof in place and form the firm foundation of woven fabrics.

Wax: A synthetic mixture (paraffin) or an organic substance (made by bees), solid when cold, liquid when heated.

Weaving: The interlacing of warp threads (lengthwise) with weft threads (crosswise).

Weft: See woof.

Woof: A series of strings, yarns, or other suitable materials, (also called filler yarn or weft), interwoven with the warp to make fabrics.

Wool: Fleece of sheep or fibre made from fleece.

Wrapping: Folding or winding around a material.

Yarn: Material made by twisting threads together.

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HISTORICAL CHART

WEAVING

Pre-Historic

- Basketry the earliest known ancient craft, Egyptian basketry unearthed and radiocarbon dated as about 10,000 and 12,000 years old
- Methods and designs developed in this period virtually unchanged today

4400 B. C.

- Earliest depiction of a weaving loom found on Egyptian pottery
- Weaving developed out of basketry

1760 B. C. to 1122 B. C.

- Complex loom for intricate patterns developed in China

13th Century

- Horizontal loom with treadle-operated harnesses and warping board developed in Europe

18th Century

- Industrial Revolution led to mechanization of weaving

20th Century

- Hand weaving revived by craftspeople

QUILTING AND APPLIQUÉ

Middle Ages

- Quilting in the form of padded linings for armor introduced to Europe from the Middle East by Crusaders

14th Century

- Quilting of clothing and bed-covers for warmth in colder European climate
- Earliest known bed quilt dated 1400 (Sicily)

15th Century

- Fabric cutouts introduced to quilting -- a technique known as appliqué

18th Century

- Appliqué quilts reached a high state of refinement in France with elaborate designs and rich materials

Colonial America

- Patchwork developed to recycle used material
- "Quilting bees" became a social phenomenon

20th Century

- Quilting and appliqué--like many traditional crafts--revived by North American craftspeople

BATIK AND TIE-DYEING

6th Century

- Batik and tie-dyeing developed in the Orient to decorate fabric
- Batik elevated to an art form by the Javanese, who developed tools such as the tjanting

20th Century

- The ancient crafts of batik and tie-dye practiced alone or in combination with stitchery, quilting, and other fibre arts (synthetic dyes often replacing vegetable dyes)

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photography

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PHOTOGRAPHY AND RELATED TECHNIQUES

Photography is the youngest of all the arts, being a mere 150 years old. Yet, in this comparatively short time span, it has perhaps had a greater impact on the world than any of the traditional modes of expression.

Many degrees of complexity are involved in the taking and making of photographs. The premise of this unit is to introduce the most rudimentary principles of photography in a practical format. This unit's implementation helps students to attain a basic technical and aesthetic understanding of photography and to develop a means by which to explore self-expression.

Since this is a potentially expensive area of study, techniques requiring minimal equipment are stressed, such as those requiring no camera: hand-made slides and films, and photograms. The program also deals with the pin-hole camera and film animation using Super 8 mm cameras. In this way, students are encouraged to create rather than to fall into the habit of just recording.

Students can attain surprise, satisfaction, and knowledge through this unit's various activities, which are intended to encourage experimentation. A thorough knowledge of the characteristics and potential of the medium should make future camera practitioners more imaginative.

The recommended teacher resource for this unit is Anne Taylor's Hands On (Toronto: Macmillan, 1977).

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	HAND-MADE SLIDES	
The student shall:	Have the student:	
Become accustomed to the transfer of an image from a small surface area to a larger one through screen projection.	Alter the surface of a small, pre-cut, pre-measured square of acetate by drawing on, cutting into, scratching or adding natural materials to it; place the acetate square in appropriate-sized slide mount and project it onto a screen.	The size of the projected image varies in direct correlation with the distance between the projector and the viewing surface.
Experiment with the use of shape in the making of a slide frame.	Continue to experiment using film, acetate, or glass as a base or ground for the materials that hold the design; try using coloured inks, indelible markers, watercolours, coloured acetate, food colouring, dyes, coloured cellulose tape, etc.	Taylor, Hands On, pp. 56-57. Owens, Close-Up Photography. Films concerning hand-made slides (see Audio-Visual Supplement).
Become familiar with the transparency of colour media projected through a light source.	Create wet slides (combination of oil-base and water-base liquids, incased between two squares of acetate which are heat-sealed in a slide mount). When projected, the oil and water expand from the heat of the projector, producing coloured areas of motion.	Colour media used on a clear acetate surface and then projected upon a screen are visually perceived as transparent or translucent. Colour media can be visually perceived as coloured areas of motion.
Explore the expressive possibilities of colour and shape in the making of hand-made slides.	Relate a series of slides to a theme, creative writing, or a work of literature.	Lauer, Design Basics, p. 207. Kahmen, Art History of Photography, p. 207.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	FLIP BOOK	
The student shall:	Have the student:	
Become sensitive to the qualities of rhythm and movement inherent in repeated images, each of which is slightly altered to show consecutive stages of a movement.	Observe the rhythm and movement inherent in a sequential event or action; e.g., in a dance, in the dropping of an object.	Rhythm and movement can be achieved through the repetition of line, shape, texture, and colour.
	Discuss visual perception related to film-making and viewing. (The film-maker needs twenty-four frames to compose one second of viewing time on a 16 mm reel of film; the viewer watches a succession of rapidly-moving, still photographs.)	In making motion pictures, it is necessary to film a whole sequence of frames of the subject in the same pose; otherwise the subject will only flash on the screen when projected.
Demonstrate an understanding of how the flip-book technique can present the illusion of movement through time.	Create a flip book with the approximate dimensions of 2.5 cm x 7.5 cm that consists of approximately 100 pages; use markers, coloured pencils, etc., to illustrate a sequential event or action. The "mechanics" of a flip book involve the movement of numerous bound cards or papers, upon which is depicted a visual image in gradually altered states.	The visual imagery inherent in a flip book is dependent upon the similarity and/or kinship of the components as a whole. Therefore, there must be a unity and a harmony between the images illustrated. In a flip book colour can be utilized as a unifying element and can also provide shifts in emphasis.
	Discuss the process(es) involved in the animation of a visual image.	Since the flip book depicts an illusion of movement, it also projects the quality of three-dimensional space on a two-dimensional surface much the same as film does.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Compare and contrast the principles inherent in the construction of a flip book with the techniques involved in film-making.	Kuhns, The Moving Picture Book. Films "Pas de Deux," NFB. "Animation Pie," NFB. (See Audio-Visual Supplement.)
	HAND-MADE FILM	
The student shall: Become familiar with the basic techniques for creating motion in hand-drawn animated film.	Have the student: Discuss frames, sprockets, leaders, etc., as an introduction to the physical nature of film; view hand-made animated films made by students or professionals. Prepare a hand-drawn, animated film in cooperation with other students; use the following method: Once the clear leader is distributed around the room in a continuous, uncut pattern, each student should take approximately one arm's length of working space and film. Semi-permanent markers, coloured acetate inks, and an indicator strip should be distributed to each student. The indicator strip is a length of white stag blank or a card 29 cm x 61 cm (7 1/2" x 24") which is calibrated to indicate the width of	In creating a hand-made film, the student must be aware of the basic principle that on a 16 mm film, twenty-four frames compose one second of viewing time. The space alloted for each frame is very small (16 mm) and the image that is viewed on the screen is actually made up of multiple, individual frames. Therefore if a projected image is to be seen as stationary for one second on the screen, it must be repeated twenty-four times--once in each frame. Lauer, Design Basics, p. 123. Fearing, The Creative Eye, Vol. 1, p. 20.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	the frames. This gives the students better visual control of the boundaries of the frames and also helps prevent the marking up of the working surface. The students should proceed to draw on the film, illustrating one or more sequential events. They should keep in mind that twenty-four drawn frames compose one second of viewing time. (Sequential events can depict such motions as opening-closing, expanding-shrinking, etc.)	Taylor, Hands On. London, Getting Into Film. Goldfield, A Guide to Film and Television in Canada. Due to the relatively small size of the frame which will become the surface for the visual image, the student will have to adapt and/or minimize the shapes and forms that will be illustrated in the film.
Become aware of the potential of film-making as an art form.	View the hand-made film, with an eye to judging the degree to which colours, shapes, lines, etc., are appropriate to its subject, intent, or medium.	The creation of visual imagery through film-making can be instrumental in the development of creative thought and future vocational choice.
Evaluate the degree to which a sound may be suitably matched up with visual imagery in motion.	View the film again, this time considering the kind of sounds that would provide an effective accompaniment. An instrumental recording played at 78 r.p.m. can be interesting and surprisingly suitable. Another possibility is that students invent and tape their own music. Or, a sound strip can be painted on the film and scratched in to provide various sounds.	Films "Blinkity Blank," NFB "Fiddle-De-Dee," NFB (See Audio-Visual Supplement.) For "sound" with hand-made films, see: "Pen-Point Percussion," "Dots," NFB. Artists: Norman McLaren (C), Don Arioli (C) Lauer, Design Basics, p. 22.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	PIN-HOLE CAMERA	
The student shall:	Have the student:	
Become aware of the historical development of the camera obscura, which preceded the wide use of photography as a means of recording visual images.	Participate in a discussion of various historical developments related to the camera obscura.	Man-made apparatus has been used in the past to record visual detail and to assist in the study of space and perspective. French, Principles of Collage.
Be able to construct a light-sensitive apparatus in the form of a pin-hole camera.	Construct a pin-hole camera. (Directions are found at the end of the unit.)	Kahmen, Art History of Photography.
Become aware of the similarities and differences between a pin-hole and a regular camera.	Compare the constructed pin-hole camera with the workings of a manufactured, simple box-camera.	Basic photographic and visual principles can be illustrated and achieved through the construction and use of a pin-hole camera. In the construction of a pin-hole camera, the shape and form of the container used is directly related to the outcome of the photographs obtained. Leen, Taking Pictures.
Make decisions as to lighting conditions and the design of the image of intended photographs.	Consider environmental influences before taking photographs with the pin-hole camera. The best results are usually obtained in natural daylight.	An image obtained by the use of a pin-hole camera has the unique quality of illustrating an infinite depth of field. Shull, The Hole Thing.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Apply the elements and principles of design to the composition of a photograph; take the photograph, being particularly careful in holding the camera, releasing the shutter, etc.	Photographic imagery can be realistic or abstract in nature. When learning the "art" of photography, a student should develop an "eye", that is, should be able to select certain visual images and to emphasize them in the composition.
Gain an understanding of photo developing procedures.	Develop the prints using the basic chemicals and equipment and proper procedures.	Taylor, Hands On, pp. 30-35. Artist: Ben Shann
	Pull a positive print from a negative print.	Lauer, Design Basics, p. 84.
Develop an awareness of aesthetics in the format of the final presentation.	Present the finished print in an acceptable format: framed, matted, collage, etc.	Photographs created by the use of a pin-hole camera allow the viewer to make personal interpretations. Fearing, The Creative Eye, Vol. 1, Chapter 1.
	PHOTOGRAMS	
The student shall:	Have the student:	
Become familiar with some of the historical aspects related to the development of photograms.	Discuss the historical development of photograms, and look at some of the works of specific artists such as Man Ray and Moholy-Nagy.	Artists: Man Ray, Laszlo Moholy-Nagy

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Compile a variety of found objects into a visually-pleasing composition.	Make photograms by placing well-designed arrangements of found objects (transparent, translucent, opaque) onto light-sensitive photographic paper.	To be visually successful, objects arranged upon the light-sensitive paper should adhere to some of the principles of compositional unity and balance.
Become familiar with the basic techniques that are used in making a photogram.	Expose the objects and paper to light for a recorded period of time. The objects are then removed and the photographic paper is developed in the photo-chemicals.	The success of a photogram is directly related to the influence and the correct handling of photo-chemicals.
Become aware of the varieties of photogram techniques in order to achieve differing visual effects.	Explore the following techniques: multi-tone prints made by repeatedly shifting the objects and exposing the paper to light; story-telling prints made by arranging the objects in a descriptive manner; positive prints developed by wet or dry methods.	Depending upon the density of the object, the resulting visual image is produced in a variety of values, ranging from solid black through to white. The texture of the subjects is very evident in photograms. Cooke, Designing with Light on Paper and Film. Haffner, Making Photograms. Steven, Design in Photo-Collage. Patra, Photography Without a Camera. Pollack, The Picture History of Photography: From the Earliest Beginnings to the Present Day. Taylor, Hands On.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	STORYBOARDS	
The student shall:	Have the student:	
Become familiar with the concept of sequences through the study of commercial comic strips.	Do a preliminary study of condensed visual and verbal imagery as found in comic strips; study the strips for continuity and storyline approaches.	Sequences are illustrated in newspaper and journal comic strips. A storyboard has a similar format. It is divided up into frames in which a composite of sequential actions or events takes place. Each frame generally has reference to the one preceding.
Recognize that a storyboard can express a personal and/or universal idea or message.	Discuss what themes or storylines might be illustrated through storyboards.	Humour, social commentary, satire, etc., can be illustrated through the medium of the storyboard. Andersen, Make Your Own Animated Movies: Yellow Ball Workshop Film Techniques.
	Plan the storyboard by selecting an idea, an action, or an event and calculating the number of sequences (frames) needed to complete the idea, action, or event.	A sequence illustrates a transition of time, place, or action.
Demonstrate an understanding of the way in which the storyboard can illustrate serial actions or events.	Draw a simple storyboard illustrating a sequence of events or actions which might be subsequently used for the creation of an animated film.	The size of the frames and the depiction of the image within is determined by the emphasis intended. Although a variety of effects is possible, the visual imagery found in storyboards is

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		heavily dependent on the use and manipulation of line (contour, cross-hatching, etc.). Colour also plays an integral part in storyboards. It either correlates with reality or makes a statement of its own. In animation and/or publishing operations, the use of colour is strongly dictated by mechanical and financial limitations. Taylor, Hands On, pp. 9-11. Herdeg, Film and T. V. International Survey of the Art of Film Animation. Lauer, Design Basics, p. 123.
	FILM ANIMATION	
The student shall: Become aware of the role of film in contemporary society.	Have the student: Discuss the function of film in society as a whole, as an educational device, as propaganda, as entertainment, as a builder of attitudes and values.	Present-day values and societal activities are heavily influenced by visual imagery of the fourth-dimension (films, television, etc.).

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
Become familiar with the historical development of film animation.	Research the history of film animation.	The elements of art and chemistry have shaped the growth of photographic image making.
Become familiar with the skills involved in the production of an animated film.	Research reference books for various animation techniques. Discuss the handling of a Super 8 mm movie camera.	Elam, Experimental Animation: An Illustrated Anthology.
	Discuss film-making principles that relate to a Super 8 mm camera as it is used for animation. (On 8 mm film, eighteen frames compose one second of viewing time.)	Film animation results from the projection, in rapid succession, of a number of still photos of sequential events. Achieving a smooth transition between sequences is a matter of timing, the placement of the subject, and much practice. Having students shoot a five-second sequence of a single action on a practice film will give them an opportunity to develop a sense of timing. Horvath, Film-Making for Beginners. Kennedy, Film-Making in Creative Teaching.
Make decisions regarding the timing of the action, the dramatization of the script, the management of settings and props, and the use of special techniques (focus, pan shots, angles, etc.).	Develop a storyline or script to be followed in the making of an animated film. Create a storyboard or script.	Colour in film animation is inherent in the subject and background selected. But it is also dependent on the quality and manipulation of the natural and artificial

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
	Select subjects to be used in the film: human characters, toys, constructed or drawn forms, etc. Begin to photograph the subject; do not shoot continuously; use a cable release to expose just one frame at a time; keep the following considerations in mind: - the number of shots and frames, and the timing of sequences - use of lighting (if needed) - creation of settings, props (two- and three-dimensional) - manipulation of models, in conjunction with the shooting of the film - use of techniques to produce special effects (pixilation, erasure, etc.) - editing of the film (optional) - use of sound track (using tape recorder) - creation of title boards (names of cast, director(s), camera crew, etc.)	light sources which are used to illuminate the subject. It can be used to create a focal point. Visual imagery can be manipulated through emphasis and de-emphasis. The outcome of an animated film is influenced by the manipulation of space; that is, through the manipulation of the camera lens (close-up shots, pans, etc.), the background for the film provides a variety of visual effects. One frame composes one-eighteenth of a second of viewing time. Therefore, several frames of an image in the same position are necessary in order that the image be "seen." Taylor, Hands On. Lauer, Design Basics, p. 22. Historical Reference: Thuamatrope, Paris, 1820; Zoethrope, 1850; Flicker book, 1890; First animated cartoon, 1915, "Felix the Cat" by Earl Lund (USA) who also patented the gel process; Continued development of animation by Walt Disney, creator of Mickey Mouse.

OBJECTIVES	SUGGESTED ACTIVITIES	EMPHASES/RESOURCES
		Artists: Norman McLaren (C), Caroline Leaf (C), Coe Hodeman (C), Nancy Edell (M)
Become aware of the potential of film-making as a means of expression.	View the film, discussing its success. Does it adequately express a mood, an idea, or tell a story, and maintain a suitable rhythmic flow?	Film animation is a relatively innovative activity and an instrument of creative expression.

CONSTRUCTION OF A PIN-HOLE CAMERA

A pin-hole camera is made from a relatively small, light-tight box or container the inside surfaces of which are painted a flat black colour throughout.

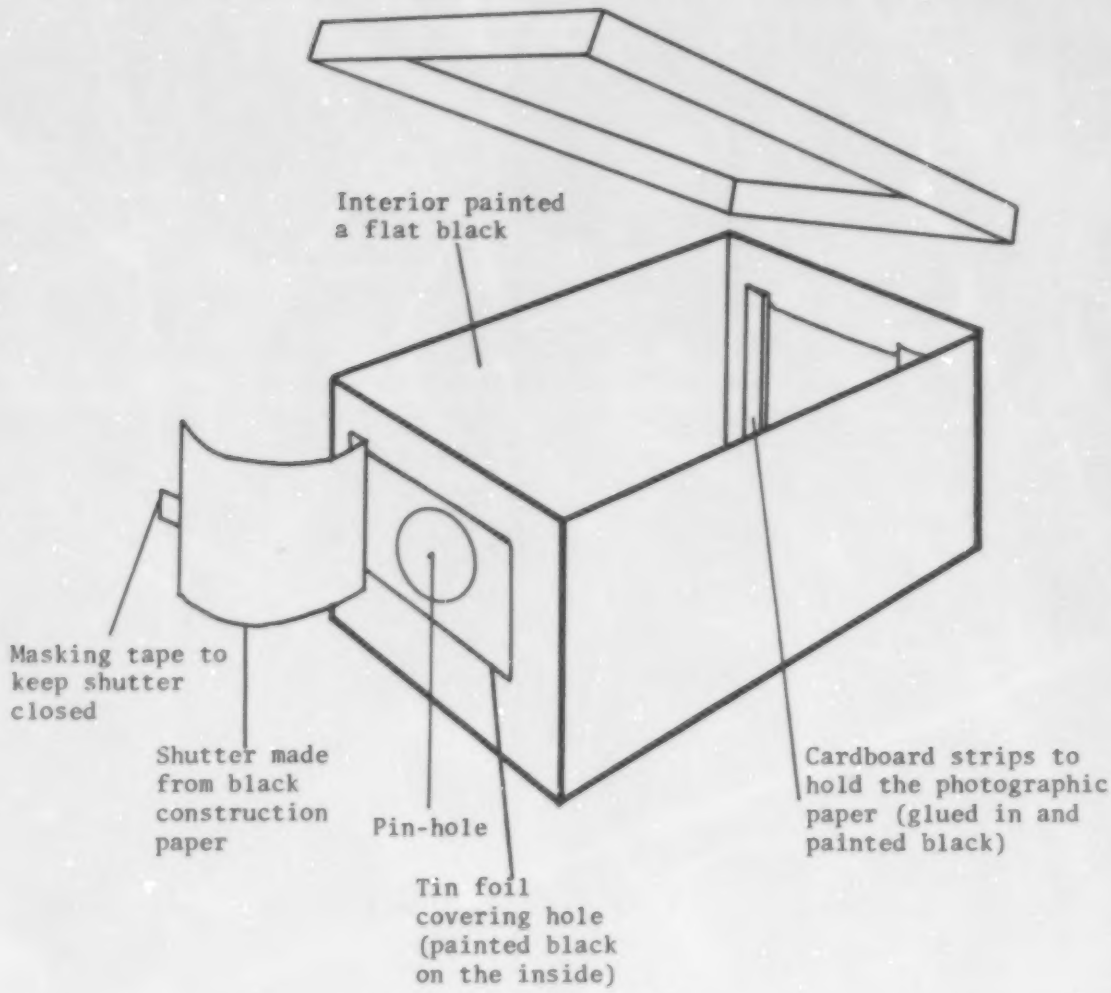
A quarter-size hole is made in the centre of that side of the box which will be facing the subject to be photographed. The sides of the hole must also be painted black to prevent light that enters the container from bouncing haphazardly inside.

The hole is covered with a layer of heavy-weight tin foil (painted black on the surface facing the inside of the box).

A very small pin prick is made into the centre of the foil covered opening. The "burr" caused by the penetration of the needle has to be carefully sanded down using a fine grade of sandpaper.

A "shutter" is made of black paper to cover the tin foil "lens."

The inside of the container should be fitted with cardboard strips (painted flat black) to hold the photographic paper (can be obtained in 10 x 12.7 cm dimensions).


Interior painted a flat black
Masking tape to keep shutter closed
Shutter made from black construction paper
Pin-hole
Tin foil covering hole (painted black on the inside)
Cardboard strips to hold the photographic paper (glued in and painted black)

The camera is loaded under a safelight or in complete darkness; the shiny or emulsion side of the photographic paper faces the lens.

A photograph is taken by carefully placing the camera on a firm, non-moveable base (tree stump, parked car, etc.). It is very important that the camera be kept perfectly still. Otherwise, a clear image will not be obtained. The shutter is opened for approximately 60 seconds (this varies).

After taking the picture, the shutter must be kept closed and the camera taken to the darkroom for print developing.

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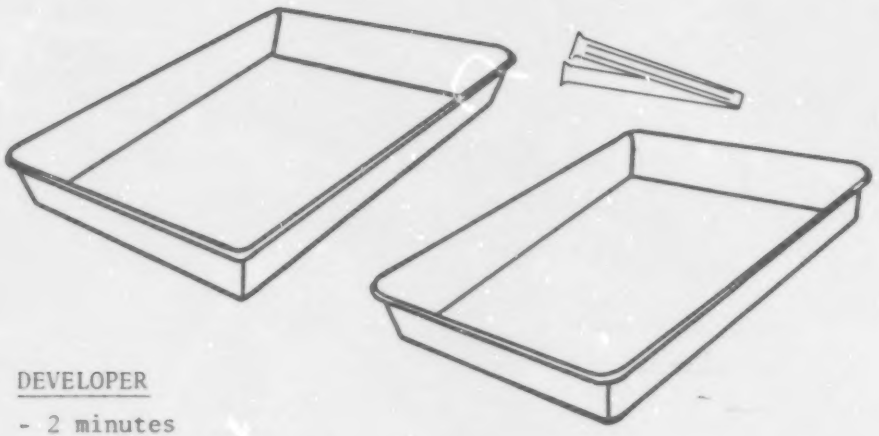
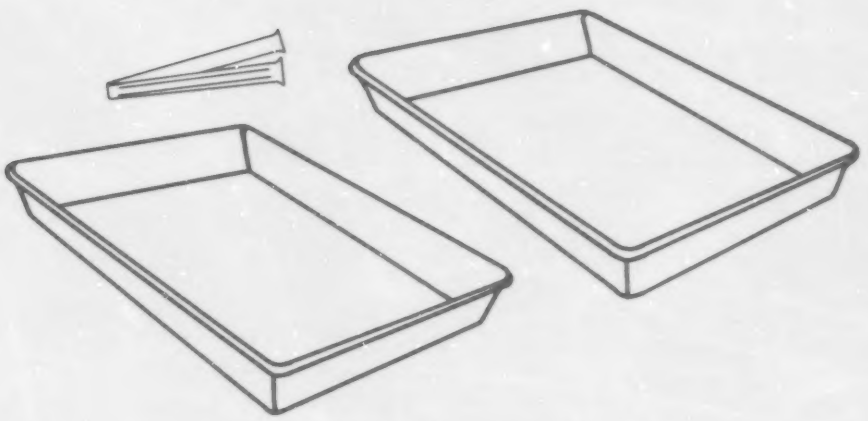
PHOTO-CHEMICALS AND PRINT DEVELOPING





DEVELOPER

- 2 minutes
- use tongs and drain print before going to the next tray

STOP BATH

- 30 seconds approximately
- drop print in and return developer tongs to the first tray

FIX (HYPO)

- 5 to 10 minutes
- same tongs can be used for the stop bath and fix

WASH (H_2O)

- 10 to 25 minutes
- prints can be "packed" here and stacked
- may later be bathed under running water to remove chemical residue

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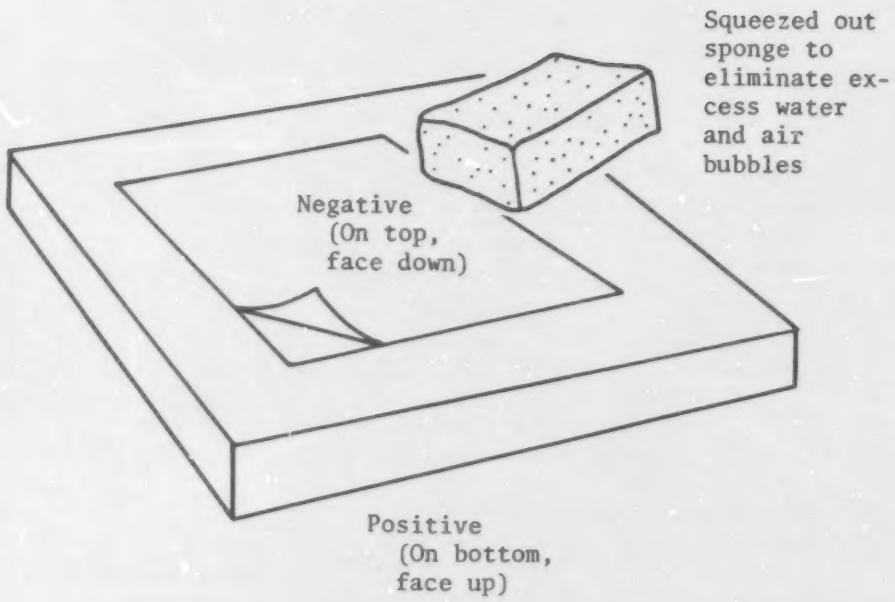
WET
PRINTING



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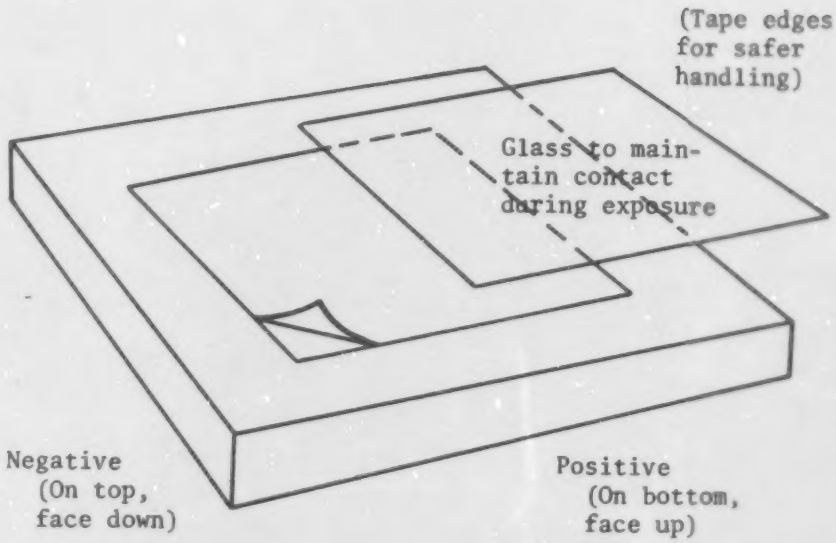
DRY
PRINTING



NOTE: Dry Printing has a higher success rate than Wet Printing. Therefore, the Dry Printing Method is recommended for classroom use.

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GLOSSARY OF TERMS

Animation: A process by which a repetition of the slightly altered still images creates the illusion of movement.

Camera Obscura: An apparatus whereby visual images can be recorded (upside down) onto a drawing or painting surface, often used by 16th century artists to record details of selected scenes that could be further translated in the studio; translation from Italian: "dark room."

Collage: A collection of objects that are arranged together and affixed to a surface.

Flip Book: A multi-paged book of small proportions, in which the repetition of slightly altered still images gives the illusion of movement when pages are flipped.

Indelible Markers: Semi-permanent or permanent marking pens that are suitable for drawing on acetate and other plastic surfaces.

Leader: A length of film whereon images are recorded (sometimes including a magnetic strip whereon sound is recorded).

Lens: An opening through which light enters to record a visual image in a photographic apparatus.

Negative Image: An initial print that is attained in the photographic process in which values are reversed: lights are dark, darks are light.

Photo-Chemicals: Chemicals used to develop the exposed image which is on light-sensitive photographic paper, including developer, stop bath, fix (hypo), wash (H_2O).

Photogram: A visual image recorded by placing objects on light-sensitive photographic paper which is then exposed to a light source, and developed by using photo-chemicals.

Photo-Paper: Light-sensitive paper with a specially treated surface (must be handled in complete darkness or under a darkroom safelight).

Pin-Hole Camera: An easily-constructed camera made from a light-tight box or container.

Positive Image: A print with true-to-life values that is pulled from a negative print using a wet or dry technique.

Script: An outline or text that is to be followed in a movie, play, etc.

Sequence: A series of things following in an order.

Shutter: A device that controls the amount of light reaching a film's surface.

Slide Mounts: Paper or plastic frames (sometimes reusable) used to mount slides; can be purchased from camera shops.

Storyboard: A basic outline of plot or sequence used to determine sequential development in an animated film.

Super 8 mm Camera: A camera for recording live action, capable of achieving a variety of special effects (pixilation, erasure, etc.).

Two-Dimensional: Space that exists on a one- and two-plane surface (only one side can be experienced at a time).

Three-Dimensional: Space that exists in three planes (can be a free-standing form).

Fourth-Dimensional: An experience outside the realms of the two- and three-dimensional (sensory, visual (as in film), auditory, olfactory, etc.).

HISTORICAL CHART

Greek Period

- Aristotle recorded the optical principles of the camera obscura

11th Century A. D.

- Arabian scholar, Alhazen, described the camera obscura clearly (his work on optics later becoming a main source of reference for Roger Bacon and other European scholars)

1500 to 1520

- Leonardo da Vinci twice described the camera obscura in his notebooks, unpublished until 1797

1521

- Illustration of camera obscura by Dutch physician and mathematician Reiner Gemma Frisius published

1558

- Giovanni Battista dell Porta, Neopolitan scientist, described the camera obscura in detail, recommending it as an aid in drawing; description published in "Magiao Naturalis," and still considered best

1568

- Danielo Barbaro, Venetian nobleman, recommended the substitution of a lens for the pinhole to reproduce a sharper and brighter image; published in "da Practica della Perspectiva"

1573

- Egnatio Danti, Florentine mathematician and astronomer, discovered that by adding a concave mirror, the inverted image could be reversed; published in "La prospectiva di Euclide"

1589

- Porta extended the practical application of the camera obscura to portraiture (the sitter being posed in direct sunshine outside the room and in front of the aperture in the window shutter); published in "Magiae Naturalis"

16th to 18th Century

- Camera obscura shrank to a portable two square feet, becoming very popular with artists of the time

1727

- Heinrich Schulze, German Physicist, discovered that silver chloride acted on by light becomes insoluble in ammonia (early discovery of how to "fix" photographic prints)

1826

- Joseph Nicephore Niepce (1765-1833) developed method of rendering photographic images permanent through use of bitumen and lavender oil (his aim being to reproduce engravings photographically)

1837

- Louis Jacques Mande Daguerre (1787-1851), partner of Niepce, developed method of preserving images made by camera obscura (first successful print signed and titled "The Artist's Studio")

1839

- French government bought Daguerre's invention and made details of photographic processes public

1841 to 1842

- Daguerre's five to forty minute exposure time reduced to less than a minute by improved lenses and better methods of preparing light sensitive plate
- Cyanotypes introduced by Sir John Herscel in 1842

19th Century--Britain and the United States

- William Henry Fox Talbot, English scientist, perfected method by which photographic prints were made on light-sensitive paper, rather than on silver coated copper plates (1833-1839); called "calotypes," Greek for "beautiful pictures"
- Talbot published "The Pencil of Nature" (1844), first book ever to be illustrated with photographs (twenty-four calotypes included)
- Frederick Scott Archer, British sculptor, devised process in which glass plates coated with collodian were developed in light-sensitive chemicals (silver nitrate solution), then exposed, while wet, in the camera (1851); improvement over daguerrotypes and calotypes
- Variation of collodian photography evolved (1856), called "tintype"; quick, inexpensive development of prints that, not fragile, could be sent by mail
- Around 1854-1860, "Cartes de Visites" became popular (paper photographic prints--usually portraits--mounted on card with dimensions of 10 x 6.25 cm)
- Elaborately bound albums, with slots into which the uniform cards could be fitted, became popular fixture in Victorian parlours
- Roger Fenton (1819-1869), first accredited war photographer, covered Crimean War (1855)
- Commercial establishments began developing and perfecting ready-made collodian plates to be processed at photographer's convenience (1867-1879)
- George Eastman (1854-1932), American dry-plate manufacturer, introduced "box camera" (1888), making camera available to general public for first time (called "Kodak")

20th Century--Britain and the United States

- "Stereoscopes," blending two images to produce illusion of spatial depth, became "home movies" of the early 20th century
- From 1900-1930, photographer as "artist" evolved:
  - Alfred Stieglitz, American photographer, was ardent supporter of photography as art medium; collaborated with other photographers to open "Gallery 29" on 5th Avenue, New York, presenting daring and innovative visual works including photography, painting, sculpture, and drawing
  - In 1920s, Man Ray (b. 1890), American painter connected with Dada circle in Paris and New York, together with Hungarian, Laszlo Moholy-Nagy (1895-1946), began to make photographic images by placing three-dimensional objects on light-sensitive paper and then exposing them to light; called "Rayographs" and Photograms
- American Earl Lund made first animated cartoon, Felix the Cat (1915); also patented gel process
- Recent photographer-artists documented scenes of daily life, poverty, cruelty, or despair (Jacob Riis, Lewis W. Hine, Dorothea Lange, Walker Evans, Henri Cartier-Bresson, Imogene Cunningham, and Diane Arbus)

Introduction to Colour Photography -- 19th Century

- Louis Ducos du Hauron proposed subtractive method of colour photography in his book, "Les Couleurs en Photographie, Solution du Probleme"
- Other advancements in colour photography made by:
  - . Charles Jasper Joly, Dublin physicist, 1896
  - . Hermann Wilhelm Vogel, Berlin professor of photochemistry, 1873
  - . Frederic Eugen Ives, Philadelphia, 1891
  - . Auguste and Louis Lumiere, France, 1904

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Colour Photography--20th Century

- Germany (Afga) and United States (Kodak) simultaneously developed modern methods of colour photography based on multiple layer film and coupling components (1930s)
- Americans Leopold Godowsky and Leopold Mannes invented "Kodochrome" film (1935)
- American Edwin H. Land invented "Polaroid" camera (1947), producing positive print in 60 seconds (now 10 seconds)

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AUDIO-VISUAL SUPPLEMENT

The following films can be used to supplement the Photography unit. Although most of those listed fall into either an experimental or animated category, many can be related to other sections of the curriculum. Notes to that effect are made below.

All films are available at the Manitoba Department of Education Library (1181 Portage Avenue, Winnipeg).

"Animation Pie" (25 minutes, colour)

- presentation of techniques for flip books, drawing or film
- pixilation, cut-outs, and clay animation (1974)

"Blinkity Blank" (5 minutes, colour)

- early hand-made film (1948) by Canadian film-maker, Norman McLaren
- suitable for Hand-Made Film section

"Cat's Cradle" (10 minutes, colour)

- animated film without words (1974)

"Children Make Their Own Film" (16 minutes, colour)

- illustration of what children can do with film (1972)
- suitable for Film Animation section

"Doodle Film" (3 minutes, colour)

- experimental film (1970)
- suitable for Hand-Made section

"Dots" (3 minutes, colour)

- demonstration of how to draw sound and visuals directly on the film

"Fiddle-De-Dee" (3 minutes, colour)

- Norman McLaren film (1948)
- suitable for Hand-Made Film section

"Hoppity Pop" (2 minutes, colour)

- Norman McLaren experimental film (1949)
- coloured shapes dance to music

"Light Fantastick" - Parts I and II (58 minutes, colour)

- detailed retrospective of animation and animators
- Canadian (1974)
- suitable as an introduction to the unit

"Lines Horizontal" (6 minutes, colour, 1961)
"Lines Vertical" (6 minutes, colour, 1962)

- experimental films by Evelyn Lambert and Norman McLaren

"Men in the Park" (6 minutes, colour)

- animated film using black pencil drawings (1971)

"Modulo" (8 minutes, colour)

- animated film about automobiles, without words (1973)
- suggests the speed and vitality of machines

"Pas de Deux" (13 minutes, black and white)

- Norman McLaren film, using multiple imagery of ballet dancers (1967)
- suitable for Flip Book section

"Pen and Point Percussion" (6 minutes, black and white)

- Norman McLaren film on how to put synthetic sound on film (1951)

"Sand Castle" (13 minutes, colour)

- experimental animation (1977)

"Sooper Goop" (13 minutes, colour)

- animated film on advertising and consumer education (1975)
- suitable for advanced Film Animation section

"Tchou-Tchou" (13 minutes, colour)

- experimental film (1972)
- suitable for Film Animation section

"Under the Rainbow" (10 minutes, colour)

- experimental film (1972), exploring man versus nature versus technology
- suitable for Film Animation section

"Wind" (9 minutes, colour)

- experimental film (1972)
- suitable for Film Animation section

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appendices

APPENDIX A: HAZARDOUS ART MATERIALS

Many materials commonly used in the art classroom pose potential health risks to both teachers and students, the danger varying from the slight to the great. In some cases, taking precautions will be sufficient to overcome the danger. In other cases, substitution of other materials will be required. Either way, practice must be governed by an understanding of the hazards involved.

This section was compiled to make teachers aware of those hazards as well as the precautions and the substitutes that are necessary to deal with them. Hazards are not treated in depth here. More definitive information can be located in the reference books contained in the list at the end. Teachers are encouraged to use the listing and seek out their own sources. Michael McCann's Artist Beware: The Hazards and Precautions in Working with Arts and Crafts Materials (New York: Watson-Guptill, 1979) is a particularly valuable source of information.

Canadian law does not require manufacturers to label art materials and list ingredients. The abscence of legislation makes it difficult to identify hazardous chemicals that may be used to process or treat art materials. In many cases, information can be obtained only by writing the manufacturer. Teachers are urged to do so if they have any questions.

Listed immediately below are dangerous chemicals that should never be used in the classroom. Following that is an alphabetical list of materials. Teachers are urged to read the section carefully, acquaint themselves with the information contained there and take the necessary steps to safeguard the practice of art in the classroom.

Dangerous Art Materials

These materials are extremely dangerous and must not be used:

cyanide solutions (potassium ferrocyanide)
cadmium silver solder
benzene
carbon tetrachloride
chloroform
ethylene dichloride
trichlorethylene
perchlorethylene
uranium oxide (glaze)
arsenic oxide (glaze)
lead chromate
zinc chromate
asbestos, talc clays, vermiculite
benzidine-type dyes in some coloured papers
aerosol fixative sprays
methyl hydrate

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Aerosol Sprays	- organic solvents used in the sprays - very fine particles of resins, paints, or lacquer propelled into the air - greatest danger by inhalation of mists	- Use only in a ventilated area or substitute other techniques for the application of coatings. - Use water soluble materials if possible. - Never use mouth atomizers.
Bark	- dermatitis from some species	
Burlap	- dust - skin allergies - irritation if treated with formaldehyde	- Gently wash burlap before using it if this is a problem.
Candle Making	- dyes, mould release possibly toxic - fire hazard from heating wax - irritating fumes released from overheating	- Paraffin is safe. - Use only double boiler method for melting wax. - Use ventilation.
Carbon Tetrachloride	- highly toxic; known to cause liver cancer	- DO NOT USE.
Ceramic Tiles	- eye damage from glass splinters - hand cuts from sharp edges	- Wear goggles to protect eyes. - Wear gloves to protect hands.
Charcoal	- may contain carbon black (carcinogenic due to impurities)	- Use only non-toxic types. - Use vine charcoal. - Use vinyl or rubber gloves when using sticks.
Clay	- silicosis (potter's lung) from inhalation of dust from dry clay - cuts and abrasions from wet clay with grog	- Buy clay wet. - Always use clay wet. - Use clay without grog for young children.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
	- dermatitis from bacteria mould or fungus in wet clay with grog	- Get lung x-ray and have pulmonary function test every second year if you use clay frequently in the program. Current literature indicates pulmonary function taken over many years is a better indicator of problems than is x-ray for silicosis.
Clay - Low Fire	- can be a talc body (usually contains asbestos)	- Use non-talc clays. - Insist on asbestos-free clay.
Clay Talc Bodies (Low-Fire Clay)	- may contain as much as 20% asbestos	- Don't use talc clays (usually found in low-fire clay).
Coloured Acetate Inks	- acetate solvents (eye, nose, throat irritant) used to etch colour onto the acetate)	- Use water-soluble inks with a small amount of detergent (one drop); roughen plastic with 0000 steel wool to help ink adhesion. OR - Use coated acetate sheets (cells) that will take ordinary coloured inks and dyes.
Coloured Inks	- may contain benzedine-type dyes, (can cause bladder cancer)	- Use only those labelled non-toxic. - Use food colouring.
Construction Paper	- may contain toxic dyes as colour - may be treated with fungicide (mercury compounds)	- Use non-toxic materials. - Avoid wetting the paper. - Prevent students from chewing the paper or putting it in their mouths.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Copper Metal	- slight toxicity (will cause allergies in some people) - metal fume fever from copper powder (sanding dust) possible	- Use a fume hood.
Copper Tooling Toner	- liver of sulphur (potassium sulfide) used in toner - moderate to high toxicity - dermatitis - alkali and hydrogen sulfide, products of decomposition	- Wear goggles and gloves when handling. - Use a fume hood.
Cotton Duck or Canvas	- dust - skin allergies if treated with fungicide (irritant)	- Wash fabric before use if it causes a problem.
Crayons	- toxicity of some brands	- Use only non-toxic crayons. - Leave paper wrapper on to protect fingers from contact with the wax.
Cyanotypes	- potassium ferrocyanide used in activity - highly toxic hydrogen cyanide gas released when decomposed after heating, addition of acid, sitting after heating, addition of acid, sitting after being mixed, exposure to ultraviolet light (fluorescent light and sunlight)	- This is a dangerous chemical that should never be used in the classroom. - Use portrait proof paper (no developing required) or blueprint paper exposed with sunlight.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Developer	- skin and eye irritation - toxic by inhalation	- Use mechanical ventilation. - Use gloves and goggles; never put bare hands in developer solution. - Use tongs. - Use care in cleaning up.
Electric Fry-Pan (for heating wax)	- irritating fumes released from pyrolization of wax spatters over pan	- Cover exposed parts of pan with removable aluminum foil and replace frequently. - Use pan in good repair.
Epoxy	- toxic by skin contact and inhalation	- Wear gloves and goggles. - Use a fume hood.
Feathers	- anthrax infection possible from wildfowl feathers	- Use domestic fowl feathers or processed (pre-coloured) feathers from a craft store.
Felt Pens	- toxic organic solvents in permanent types	- Use non-toxic, water-soluble markers.

Fibre Dyeing (Natural Dyes)	- moderate toxicity from roots such as logwood
	- salmonella contamination of cochineal
	- mordants; of particular concern are
	  - Oxalic acid: high toxicity
	  - Potassium dichromate (chrome): suspected carcinogen
	  - Stannous chloride
	  - Tannin (tannic acid): suspected carcinogen
		- Vegetable sources are usually safe.
		- Prevent ingestion and inhalation.
		- Use mask and gloves.
		- Use extreme caution in handling these chemicals.
		- Use gloves, goggles, and respirator or mask (3M-8710) when handling these powders.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Fibre Dyeing (Synthetic Dyes)	- irritation of eyes, respiratory system and skin from fine powders - bladder cancer from direct dyes - liver cancer in animals from other types (Rit and Tintex are mixtures of direct and other dyes)	- Treat all synthetic dyes with great care, using goggles, gloves, and respirator or mask (3M-8710). - Clean up any spills with large quantities of water. Any dye that is not cleaned up will become powder when dry and will remain toxic. - Use fume hood when handling. - Use alternates (food dyes).
Finger Paint	- toxicity of some types	- Use only non-toxic types. - Make your own (see recipes at end of this section).
Fixer (sodium thiosulfate)	- may contain toxic chemicals or irritants such as alum, boric acid, or formaldehyde (in addition to sodium thiosulfate) - toxic sulfur dioxide released upon decomposition	- Ventilate fixing bath. - Use caution in handling and mixing fixer. - Fixer is not as toxic as developer or stop bath.
Fur	- anthrax infection possible from working with unprocessed fur	- Use processed (tanned) furs.
Glass Staining	- highly toxic dyes and solvents - may contain toulene, xylene	- Use fume hood and gloves if dyes are solvent based. - Use safer water-soluble acrylics.
Glaze	- dry powders - toxic oxides (or highly toxic): - antimony oxide	

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
	- asbestos - barium carbonate - beryllium, beryllia* - bone ash (calcium phosphate) - borax, boric acid - cadmium* - chrome yellow** - chrome oxide* (lead chromate) - cobalt - copper carbonate,* malachite - cryolite, cornish stone* - feldspars: silica (silicosis) - fluorspar* - iron chromate* - lead compounds: raw, fritted - lithium carbonate: irritant (powerful mood-altering drug) - manganese carbonate - manganese dioxides: nerve toxin - naples yellow: lead - nepheline syenite - nickel carbonate,* oxide - potash - potassium dichromate* - pumice - soda ash - sodium silicate - talc - asbestos* - uranium oxide** - vandium oxide* - vermiculite* - zinc yellow** - zircon zircopax*	*Carcinogin or serious toxin **No known safe level

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Glue	- toxicity of some glues	- Avoid contact adhesives (solvent), rubber cement (solvent), epoxy (hardener, toxic), formaldehyde - resin (resorcinol). - Use safe, non-toxic white glue or PVA (polyvinyl acetate emulsion).
Grout	- caustic burns to eye lining - skin problems for some people - slow healing of open sores or cuts after exposure to grout	- Avoid eye contact, use goggles. - Protect hands by using vinyl or rubber gloves.
Gum Arabic (gum acacia)	- respiratory allergies when inhaled as in enamelling techniques	- Use a respirator or mask (3M-8710). - Use a fume hood. - Use sugar or syrup solution as a binder.
Gum Tragacanth	- respiratory allergies/asthma when inhaled as in enamelling	- Use respirator or mask when mixing powders. - Use fume hood. - Use sugar or syrup as a binder.
Hemp	- dust - skin allergies for some people	- Use gloves.
Hessian Burlap	- dust - skin allergy - toxic if treated with formaldehyde	- Gently wash burlap before use if a problem.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
India Ink	- may contain carbon black contaminated with aromatic hydrocarbons (carcinogen)	- Use non-toxic types, such as fountain pen ink. - If using India ink of unknown quality, do so with mechanical ventilation.
Ink - Coloured	- dyes (see entry under Fibre Dyeing) - solvents - pigments (see entry under Pigments)	- Use non-toxic inks. - Avoid skin contact. - Clean up spills thoroughly, using rubber gloves, a sponge and large quantities of water. - Do not clean up with bleach as this can create a more severe problem. Many clorinated chemicals are carcinogenic. - Substitute coloured food dyes.
Jewellery	- fine metal file dust - solder - acid	- Keep work area clean by wet cleaning or vacuuming. - Use a fume hood for processes that create fumes; i.e., soldering.
Jute	- skin or respiratory allergy	- It may be necessary to use a dust mask (3M-8710) or wear vinyl or rubber gloves when working with jute.
Lead (glaze, soldering, stained glass)	- toxic at low levels, especially for young children - suspected mutagen and teratogen	- Use only lead-free glazes. - Solder only in a fume hood. - Stained glass using lead came and copper foil is not a recommended activity for children.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Leather	- toxic chrome salts used for tanning some leather - skin allergies - poisoning possible if chewed	- Prevent students from chewing leather. - Do not use with young children.
Leather Tooling (Leather Kits)	- toxicity of leather dyes (both dyes and carrier solvents)	- Use only non-toxic dyes such as those that are ethyl-alcohol based. - Wear gloves. - Use mechanical ventilation (fume hood).

Lost Wax Casting (Jewellery)	- investment or moulding compounds may contain:
	  - silica: silicosis
	  - asbestos: asbestosis, lung cancer, intestinal tract cancers
	  - and may produce fumes: highly irritating to lungs and eyes
		- Use only non-silica investment.
		- Beware of asbestos content.
		- Burnout should be ventilated.

Magazines	- preservatives in paper - lead chromate inks present in colours	- Prevent students from chewing the paper.
Metal Fumes	- toxic byproducts when heating lead, copper, solder; welding; firing bisque and glaze kiln	- Use mechanical ventilation or fume hood. - The odour of fumes in the air is a warning of danger.
Methyl Hydrate	- highly flammable - highly toxic by skin contact (nerve, liver, kidney damage; blindness; death)	- Use grain (ethyl) alcohol.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Modelling Materials (Papier Mâché)	- fine dust in commercial product - lead chromate and other inks on paper - preservatives	- Use only non-toxic materials.
Modelling Materials (Plasticine)	- china clay, oil base, dyes (colour), preservatives, silicates, turpentine - ingredients toxic by ingestion - skin problems (some brands)	- Use only non-toxic brands. - It may be necessary to have some children use barrier cream on their hands, but check with parents first. - Have students put hands under plastic bread bags or wear vinyl gloves.
Modelling Materials (Self Hardening)	- may contain asbestos	- Use only asbestos-free clay. - Use only non-toxic clay.
Newspaper	- skin allergies for some people from oil in ink - may be treated with fungicide (irritant) - lead chromate (carcinogen) in some coloured inks	- Use only black and white sections for papier mâché.
Paint (Tempera disk or block)	- may contain toxic pigments or dyes - may contain irritants such as binders (gum arabic and tragacanth) - may contain preservatives	- Tempera Disk or block is the safest form of tempera for classroom use. - Clean up spills promptly (e.g., water dish) with a wet sponge or wet mop. - Do not allow students to paint their skin. - Use products labelled non-toxic.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Paint (Tempera - liquid)	- may contain toxic pigments or dyes - may contain irritants such as binders (gum arabic and tragacanth) - may contain preservatives	- Clean up spills promptly with a wet sponge or wet mop. - Do not allow students to paint their skin. - Use products labelled non-toxic.
Paint (Tempera - powder)	- may contain toxic pigments or dyes - inhalation of powder dust	- Never let young children use powdered tempera. Use not recommended in public schools unless pre-mixed by teacher. - Use other forms of tempera. - Do not allow students to paint their skin. - Use products labelled non-toxic.
Paper	- fungicides, such as mercury compounds, often used to treat paper	- Prevent students from chewing and eating paper.
Paper (construction, tissue, crepe)	- fungicides often used to treat paper - azo or benzidine in direct dyes for colour (benzidine is known to cause bladder cancer)	- Insist on non-toxic paper. - Moderately safe when dry, avoid wetting. - Crepe paper will contain flame proofing chemicals (borax compounds, TRISS).
Paste	- may contain formaldehyde or mercury fungicide	- Use non-toxic paste. - Make up your own (see recipe at end of this section).
Pastels	- toxic dust of fine pigments in chalk pastels - same pigments as used in paints (see entry under Pigments)	- Don't use with young children. - Use only oil pastels. - Have children be careful to keep hands clean. - Wash with soap and water.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Photography	- a number of health problems from photo chemicals	- See notes at end of this section.
Pigments	- poisonous pigments: - Burnt Umber (manganese) - Cadmium Red, Yellow, Vermillion, Orange — All are highly toxic human carcinogens - Carbon Black (lamp black): skin cancer largely due to impurities from repeated contact - Chrome Green: human carcinogen - Chrome Yellow: human carcinogen - Cobalt Blue: skin allergies, asthma from inhalation - Cobalt Violet, cobalt arsenate: skin allergies - Flake White (lead carbonate): poison by ingestion, damage to vital organs and peripheral nerves from inhalation - Lemon Yellow (barium or strontium chromate): human carcinogen - Manganese Blue and Manganese Violet: nerve damage from inhalation or ingestion - Naples Yellow (lead antimoniate): toxic mutagen - Phthalocyanine Blue (Thalo Blue, Phthalo Blue): carcinogen, mutagen, teratogen, from PCBs (usual contaminant) - Phthalocyanine Green: same as Phthalocyanine Blue	- Pigments are common to most art techniques requiring colour. - Many pigments still being used in the classroom are poisonous. All are poisonous by ingestion and inhalation.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
	- Raw Umber: toxicity from iron and manganese - Vermillion: mercury poisoning from mercury sulfide or cinnabar	
Plaster of Paris	- irritation of eyes and respiratory system from dust - will dry skin	- Plaster of Paris is non-toxic, but the dust can be irritating. Use care when handling the powder and wear dust mask (3M-8710) or respirator.
Plastics	- fumes from heating: - formaldehyde - carbon monoxide - hydrogen cyanide (amino resins) - phenol - styrene gas (styrofoam)	- Normal handling is reasonably safe. - Use hot wire cutters in a fume hood.
Potters Wheel	- physical hazard if too large for the student	
Pottery Kilns	- produce carbon monoxide, sulphur monoxide, sulphur dioxide, sulphuric acid, pyrolized carbons, metal fumes from metallic oxides present, such as iron, chrome, cobalt, manganese and vandium	- Kilns should be installed and used only under fume hoods with mechanical extraction sufficient to remove emissions. - Kilns preferably should be in a separate room and not in the classroom.
Printing Ink	- toxicity of solvent (oil)-based inks	- Use solvent-based inks only in a fume hood. - Use water-based inks. - Use mechanical ventilation (fume hood).

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Printmaking (Screenprinting)		
GS51 Adhering Fluid	- highly flammable - central nervous system toxin: depression - irritant to eyes, nose and respiratory tract	- Use mechanical ventilation (fume hood).
Hide Glue (Lepages Liquid Strength)	- preservatives: skin allergy	
Silkscreen Inks (Commercial-Industrial)	- contain many different aromatic hydrocarbons (toxic)	- Use only in a fume hood. - Use alternate water-based, water-soluble silk screen inks such as Speedball Non-Toxic Inks.
Super Blox	- methlene chloride - central nervous system depressant producing delusions	- There are no apparent problems with Speedball Photo Emulsion or Ulano Blockout which can be used instead.
P.V.A. (polyvinyl acetate) (water emulsion)	- eye irritant (ammonia) - may contain irritant preservative, formaldehyde	- Use ventilation. - Avoid skin contact, use gloves.
Sandpaper	- sanding dust	- Use approved dust mask (SM-8710). - Stop frequently and clean up with wet sponge.
Shellac	- volatile solvents - may contain methyl hydrate	- Use mechanical ventilation (fume hood).

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Shingles	- cedar shingles and shakes: toxic sawdust - asphalt shingles: tar aromatic hydrocarbons toxic	- Wear a dust mask (3M-8710) when working.
Shoe Polish	- may contain toxic solvents	- Use sparingly. - Use mechanical ventilation.
Silicone Mould Release (candle making)	- toxic by inhalation	- Use mechanical ventilation (fume hood).
Silver Solder	- cadmium fumes (known carcinogen)	- Use cadmium-free solders. - Use a fume hood.
Soapstone (Soft Stones, Serpentine)	- free silica when sanding or cutting - asbestos	- Use goggles. - Use soft stone such as limestone, pipestone which are asbestos-free. - If using soapstone, use masks (3M-8710), goggles, and gloves. - Clean up often during project. - Wet mop or vacuum afterwards.
Soldering	- lead fumes: lead poisoning - flux: zinc chloride, corrosive to the skin, eyes and respiratory tract	- Use mechanical ventilation. - Use a fume hood.
Stained Glass	- lead came - lead solder - zinc chloride flux - lead known poison - burning of skin, eyes, and respiratory system from zinc chloride fumes	- Do not do stained glass in the classroom. - Use cellophane and cardboard instead or do glass staining with acrylics.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Stop Bath (Acetic Acid)	- highly toxic by inhalation, skin contact and ingestion	- Do a careful clean-up afterwards. - The use of goggles and gloves is mandatory. - Use mechanical ventilation.
Styrofoam	- toxic gases released when heated (hot wire cutters, blowtorch, matches), especially styrene gas: known narcotic, respiratory and eye irritant, possible nerve and liver damage	- Use a knife to cut or if using hot wire cutter, do so only in a fume hood.
Tarpaper	- toxic aromatic hydrocarbons	- Use non-tar building felt.
Tissue Paper	- benzidene in some coloured varieties (bladder cancer)	- Use only non-toxic-type papers.
Varnish	- volatile solvents	- Use mechanical ventilation (fume hood).
Wallpaper Paste	- may contain formaldehyde or mercury fungicide	- Prevent children from eating it. - Use non-toxic paste. - Make up your own (see recipe at end of this section).
Wax	- toxicity of some waxes - release of acrolein fumes and other irritants from overheating	- Use food-grade parrafin waxes. - Use a double boiler to control heating.
Wood	- boxwood, cedar, rosewood, teak: respiratory, eye, and skin problems, skin allergies	- Use safer woods such as spruce or pine.

MATERIAL/MEDIUM	HAZARD	PRECAUTION/SUBSTITUTE
Wool	- possible anthrax infection when working with raw wool	- Be certain of the source. Get supplies only from a reliable dealer. - Use fumagated fleece. - Use a dust mask (3M-8710) if wool fibres cause irritation.
Yarns	- possibility of anthrax in wool yarns, hand spun	- Be certain of source of raw fleece. Get supplies only from a reliable dealer.
Zonolite, Vermiculite	- asbestos contaminated (human carcinogen)	- Don't use in the classroom. Substitute other materials such as sawdust or coffee grounds.

VENTILATION

Ventilation is an important aspect of art room safety. Opening a window will not provide adequate removal of offending vapours, fumes or dusts that cause health problems. All that opening a window provides is a false sense of security.

Ventilation systems usually are limited to general heating and cooling of the art space and may supply a number of volume changes for the room. If the room is under positive pressure, toxins will spread from the room and be distributed over a large section of the school. Negative air pressure in the room and a self-contained tempering system would keep problems in the room.

Laboratory fume hoods are important to keep toxins contained at the point of use and prevent the spread and inhalation of fumes.

A kiln gives off combustion products when it is first being fired and metal fumes later in the firing cycle. All kilns must be adequately ventilated. Most authorities recommend that the kiln not be in the classroom but rather in a separate room to reduce the contamination of the instructional space.

Installation of ventilation systems presents special problems. Seek professional engineering advice.

PHOTOGRAPHY

Photo chemicals must be treated with respect. Wear rubber gloves and goggles when handling powders and liquids. Wash exposed skin immediately when a spill occurs.

Developers present a special hazard. Most are highly toxic by ingestion and inhalation. An approved respirator should be worn when pouring developer powders.

Stop baths are usually weak acetic acid solutions, and the concentrated solution is hazardous. Take the precaution of wearing goggles and gloves.

Farmer's reducer contains potassium ferrocyanide and hypo. This chemical will break down to release hydrogen cyanide if it is used in a tray that still has traces of acid in it. Heat and strong ultraviolet light can also cause the breakdown of the chemical. Although Farmer's reducer may be the safest reducer to use, its hazardous nature should prohibit classroom use.

Use safety equipment when handling photographic chemicals. Approved dust masks, respirators, goggles and rubber or vinyl gloves can be obtained at a safety equipment supply store. Use only government approved equipment.

RECIPES FOR SUBSTITUTE MATERIALS

Wallpaper Type Paste

500 mL wheat flour
125 mL sugar
2.5 L water

1. Mix dry ingredients in a saucepan.
2. Add water slowly to make a paste without lumps.
3. Add remaining water.
4. Bring mixture to a boil, stirring constantly. Cook until mixture is thick and translucent.

Makes 2-3 litres of paste. Keep under refrigeration to

prevent the growth of moulds. Ethanol may be added or javol water to prevent mouldy paste.

Modelling Clay

565 mL wheat flour
250 mL salt
 15 mL alum
 65 mL vegetable oil
275 mL boiling water
food colouring

1. Mix dry ingredients and add oil.
2. Add food colouring to boiling water, then add other ingredients.
3. When mixture holds together, knead until smooth.

This will dry in open air or it may be dried in a slow (115°C) oven.

Finger Paint

125 mL wheat flour
500 mL water
 15 mL glycerine
food colouring or non-toxic tempera paint

1. Mix flour and water to form paste.
2. Cook at low heat, stirring constantly.
3. If mixture is too thick, add a small amount of water.
4. Divide mixture into small covered jars and add colouring.

A more satisfactory result may be obtained by adding more glycerine or sugar. Use promptly or store in the refrigerator to prevent the growth of moulds and yeasts. Adding grain alcohol (50 mL) will act as a preservative.

SUGGESTED RESOURCES

Bingham, Eula, ed. Women and the Workplace. A new book on health problems of working women which defines hazards of the workplace--DES, anesthetic gases, vinyl chloride, lead and mercury--summarizes the major health and social consequences--reproduction diseases, genetic defects, cancer--and suggests some alternatives and remedies, including regulatory and social responsibilities to provide safe workplaces for both men and women.

Available from the Society for Occupational and Environmental Health, the publisher, 1714 Massachusetts Avenue, N. W., Washington, D. C. 20036.

Carnow, Bertram W., M. D. Health Hazards in the Arts and Crafts. This pamphlet is based on a lecture at the Field Museum in April 1974. Second printing available from Hazards in the Arts, Box 110, Route 1, Steuben, Wisconsin 54657.

Government of Alberta. Health and Safety in Printmaking: A Manual for Printmakers. This is an excellent manual, approximately 100 pages, that is available from Alberta Government Services, Publications and Statutes, 11510 Kingsway Avenue, Edmonton, Alberta, Canada T5G 2Y5.

McCann, Michael. Artist Beware: The Hazards and Precautions in Working with Arts and Crafts Materials. New York: Watson-Guptill, 1979.

Safe Practices in the Arts & Crafts: A Studio Guide, 72 pages. Available from College Art Association, 16E 52nd Street, New York, New York 10022.

Siedlicki, Jerome. The Silent Enemy: Potential Health Hazards in the Arts and Their Control. Available from Artists Equity Association, 2813 Albermarle Street, N. W., Washington, D. C. 20008.

U. S. Occupational Safety and Health Administration. Occupational Safety and Health Act of 1970, PL 91-596 (OSHA 2001).

----------. Target Health Hazards (OSHA 2051). A 16-page booklet about five hazardous substances: asbestos, carbon monoxide, cotton dust, inorganic lead, and silica, which make up OSHA's Target Health Hazards Program.

The two above publications are available free (in limited quantities) from Administrative Services-Distribution, Occupational Safety and Health Administration, U. S. Department of Labor, Washington, D. C. 20210.

APPENDIX B: RESOURCES

ART MATERIALS

Artists' Emporium
905 King Edward Street
Winnipeg, Manitoba
R3H 0P8

Christie School Supply Ltd.
705 Pacific Avenue
Brandon, Manitoba
R7A 0H8

D. W. Friesen and Sons
6th Street, N. E.
Altona, Manitoba
R0G 0B0

Fraser Art Supplies
294 Edmonton Street
Winnipeg, Manitoba
R3B 2L2

University of Manitoba Bookstore
University of Manitoba
Fort Garry Campus
Winnipeg, Manitoba
R3T 2N2

VISUALS

Visuals may be purchased from the sources listed below.

Reproductions

Reinhold Visual Series
Van Nostrand Reinhold Ltd.
1410 Birchmount Road
Scarborough, Ontario
M1P 2E7

- large, colour and black and white reproductions of paintings, prints, sculpture, fibre arts, photography
- 10 sets of 24 reproductions

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Shorewood Reproductions, Inc.
Wilton Art Appreciation Program
Reading and O'Reilly Inc.
P. O. Box 302
59 Old Belden Hill Road
Wilton, Connecticut, U.S.A. 06817

- large, colour reproductions
- 2 sets of 14 prints

Winnipeg Art Gallery
300 Memorial Boulevard
Winnipeg, Manitoba
R3C 1V1

- colour reproductions and post cards available from Gallery Shop

Slides

Art Gallery of Ontario
317 Dundas Street West
Toronto, Ontario
M5T 1G4

- individual slides

National Gallery of Canada
Ottawa, Ontario
K1A 0M8

- individual slides and sets
- catalogue available

Rosenthal Art Slides
5456 South Ridgewood Crescent
Chicago, Illinois, U.S.A. 60615

Slide Sales
Audio-Visual Center
Minneapolis Institute of the Arts
2400 - 3rd Avenue South
Minneapolis, Minnesota, U.S.A. 55404

See various film catalogues and brochures distributed to schools.

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Visuals may be borrowed from the sources listed below.

Department of Consumer and Corporate Affairs 5th Floor - 401 York Avenue Winnipeg, Manitoba R3C 0P8	- slides
Department of Education Instructional Media Services 1181 Portage Avenue Winnipeg, Manitoba R3G 0T3	- slides and slide kits - films - Audio-Visual Catalogue available
National Film Board 674 St. James Street Winnipeg, Manitoba R3G 3J5	- film lending library
Travel Manitoba 155 Carlton Street Winnipeg, Manitoba R3C 3H8	- slides of Manitoba scenes and activities
Winnipeg Art Gallery 300 Memorial Boulevard Winnipeg, Manitoba R3C 1V1	- reproductions - slides and slide kits

Visuals are also available through the teacher centres of several school divisions.

Good-quality art reproductions are also used in a number of textbooks, including the following:

Canada: Growth of a Nation (Fitzhenry and Whiteside)
Gage Strategies for Language Arts (Gage Educational Publishers Ltd.)
Silver Burdett Music Series (General Learning Corp.)

Children's picture-books with illustrations by the following artists can be found in many school or public libraries. They provide excellent visuals in a variety of media.

Barbara Cooney
Elizabeth Cleaver
Gerald McDermott
Toni de Paola
Maurice Sendak
Brian Wildsmith
Tom Ungerer

See also winners of the following awards:

Caldecott Awards
Amelia Francis Howard Gibbon Illustrators Award
Canadian Association of Children's Libraries Award
Kate Greenaway Award

ADDITIONAL SOURCES

Assiniboine Community College
1430 Victoria Avenue, East
Brandon, Manitoba
R7A 2A9

- courses in commercial art

Brandon University
270 - 18th Street
Brandon, Manitoba
R7A 6A9

- course in Art Education

Canadian Artists Representation (CARFAC), Manitoba
406 - 504 Main Street
Winnipeg, Manitoba
R3B 1B8

- information about Manitoba artists

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Manitoba Arts Council 123 - 555 Main Street Winnipeg, Manitoba R3B 1C2	- Artists in the Schools/Communities - listing of artists available to serve as resource people
Manitoba Association for Art Education (M.A.A.E.) c/o Manitoba Teachers' Society 191 Harcourt Street Winnipeg, Manitoba R3J 3H2	- S.A.G. - newsletter - in-services - annual student art exhibit
Manitoba Crafts Council 914 - 504 Main Street Winnipeg, Manitoba R3B 1B7	- workshops and resource people in various craft areas
Manitoba Department of Education 1181 Portage Avenue Winnipeg, Manitoba R3G 0T3	- library--print and non-print materials - art consultant--Room 411, Curriculum Development and Implementation
*Manitoba Museum of Man and Nature/ Planetarium 190 Rupert Avenue Winnipeg, Manitoba R3B 0N2	- school tours and special topics programs - teacher in-services - information sheets and resource kits
Manitoba Puppet Theatre 692 Main Street Winnipeg, Manitoba R3B 1E6	- puppetry classes for children - school tours

*For local museums, see the brochure "Manitoba Museums 1981" available from Manitoba Museum of Man and Nature.

National Film Board
674 St. James Street
Winnipeg, Manitoba
R3G 3J5

- workshop participation
- film lending library

Red River Community College
2055 Notre Dame Avenue
Winnipeg, Manitoba
R3H 0J9

- courses in commercial and graphic art

University of Manitoba
Fort Garry Campus
Winnipeg, Manitoba
R3T 2N2

- School of Art - visiting artists program
  - summer workshops
- Education - courses in art education

University of Winnipeg
515 Portage Avenue
Winnipeg, Manitoba
R3B 2E9

- courses in art history

Winnipeg Art Gallery
300 Memorial Boulevard
Winnipeg, Manitoba
R3C 1V1

- school tours - "hands on"
  - guided tours and slide presentation
- library
- slide collection
- studio programs

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